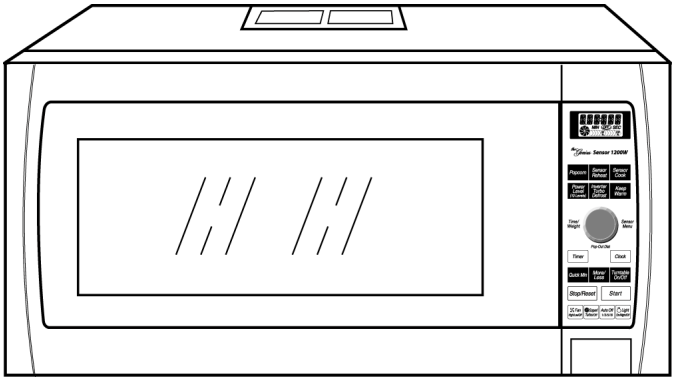
ORDER NO.PHAMOS0503019A1
E2

# Service Manual

## Microwave Oven

Simplified



# NN-P295 NN-H275
# NN-S255 NN-S245
# NN-H264SFR
# NN-H264BFR
# NN-H264WFR
# NN-S254SFR
# NN-S254BFR
# NN-S254WFR

APH(USA)

CPH(CANADA)

**Please file and use this manual together with the service manual for Model NN-S262SF (Order No.SIMMC0203005C1)**

Specifications for APH:

| Specifications: / Model: | P295SF/BF/WF | H264SFR/BFR/WFR | S254SFR/BFR/WFR | H275SF/BF/WF/QF | S255BF/WF |
|---|---|---|---|---|---|
| Power Source: | 120V AC Single Phase, 60Hz | | | | |
| Power Requirement: | 1275W | 1275W | 1275W | 1275W | 1275W |
| Output: | 1200W | 1200W | 1200W | 1200W | 1200W |
| Microwave Frequency: | *2450MHz | | | | |
| Timer: | *99 min. 99 sec. | | | | |
| Outside Dimensions: (W)x(D)x(H) | 759mm(29 7/8") x 381mm(15") x 418mm(16 7/16") | | | 759mm(29 7/8") x 390mm(15") x 418mm(16 7/16") | |
| Oven Cavity Dimensions: (W)x(D)x(H) | 591mm(23 1/4") x 367mm(14 7/16") x 242mm(9 1/2") | | | | |
| Weight: | 25kg(55lbs. ) | 25kg(55lbs. ) | 24kg(53lbs. ) | 25kg(55lbs. ) | 24kg(53lbs. ) |
| PbF | This product with PbF | | | | |
| Specifications subject to change without notice. | | | | | |

Specifications for CPH:

| Specifications: / Model: | P295SF/BF/WF | S245BF/WF | H275SF/BF/WF/QF | S255BF/WF |
|---|---|---|---|---|
| Power Source: | 120V AC Single Phase, 60Hz | | | |
| Power Requirement: | 1275W | 1275W | 1275W | 1275W |
| Output: | 1100W | 1100W | 1100W | 1100W |
| Microwave Frequency: | *2450MHz | | | |
| Timer: | *99 min. 99 sec. | | | |
| Outside Dimensions:(W)x(D)x(H) | 759mm(29 7/8") x 381mm(15") x 418mm(16 7/16") | | 759mm(29 7/8") x 390mm(15") x 418mm(16 7/16") | |
| Oven Cavity Dimensions:(W)x(D)x(H) | 591mm(23 1/4") x 367mm(14 7/16") x 242mm(9 1/2") | | | |
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| PbF | This product with PbF | | | |
| Specifications subject to change without notice. | | | | |

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## ⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

## WARNING

1. This product should be serviced only by trained, qualified personnel.
2. Though this product has been manufactured in compliance with:
   "Federal Performance Standard 21 CFR Subchapter J"(D.H.H.S): U.S.A. models
   or "Radiation Emitting Devices Act"(Health and Welfare Canada): Canadian models
   it is very important all repairs should be made in accordance with procedures described in this manual to avoid being exposed to excessive microwave radiation.
3. Check for radiation leakage before and after every servicing according to the "procedure for measuring radiation leakage."
4. If the unit cannot be repaired on site, advise the customer not to use until unit is repaired.
5. Any serviceman who learns of any accident pertaining to microwave radiation leakage including the oven operating with open door should immediately notify the appropriate address listed below and Center for Devices and Radiological Health, DHHS.

| | | | |
|---|---|---|---|
| IN U.S.A. (PASC) | Panasonic Services Company<br>50 Meadowland Parkway,<br>Secaucus, New Jersey 07094<br>Attention: Technical Service Division.<br>(201)348-7000 | IN PUERTO RICO (PSC) | PSC<br>San Gabriel Industrial Park<br>65th Infantry Ave. Km.9.5<br>Carolina, Puerto Rico 00985<br>(787)750-4300 |
| | | IN CANADA (PCI) | Panasonic Canada Inc.<br>5770 Ambler Drive, Mississauga,<br>Ontario, L4W2T3<br>(905)624-5010 |

6. There are special components used in the microwave oven which are important for safety. These parts are marked with a ⚠ on the replacement parts list. It is essential that these critical parts be replaced only with the manufacture's specified parts to prevent microwave leakage, shock, fire, or other hazards. Do not modify the orginal design.

# PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY

(A) Do not operate or allow the oven to be operated with the door open.
(B) Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs as necessary:
  (1) Interlock operation
  (2) Proper door closing
  (3) Seal and sealing surfaces (arcing, wear, and other damage)
  (4) Damage to or loosening of hinges and latches.
  (5) Evidence of dropping or abuse
(C) Before turning on microwave power for any service test or inspection within the microwave generating compartments, check the magnetron, waveguide or transmission line, and cavity for proper alignment, integrity and connections.
(D) Any defective or misadjusted components in the interlock, monitor, door seal, and microwave generation and transmission systems shall be repaired, replaced, or adjusted by procedures described in this manual before the oven is released to the owner.
(E) A microwave leakage check to verify compliance with the Federal Performance Standard should be performed on each oven prior to release to the owner.

## CAUTION

**About lead free solder (PbF)**

**Distinction of PbF PCB:** PCBs (manufactured) using lead free solder will have a PbF stamp on the PCB.

**Caution:**
- Pb free solder has a higher melting point than standard solder; Typically the melting point is 50-70˚F(30 - 40˚C) higher. Please use a high temperature soldering iron. In case of the soldering iron with temperature control, please set it to 700± 20˚F (370 ± 10˚C).
- Pb free solder will tend to splash when heated too high (about 1100˚F/600˚C).

**DANGER OF HIGH VOLTAGE AND HIGH TEMPERATURE (HOT/LIVE) OF THE INVERTER POWER SUPPLY (U)**

## INVERTER WARNING

**This Inverter board looks like a regular PCB. However, this PCB drives the magnetron tube with extremely high voltage and high current.** NEW H.V.

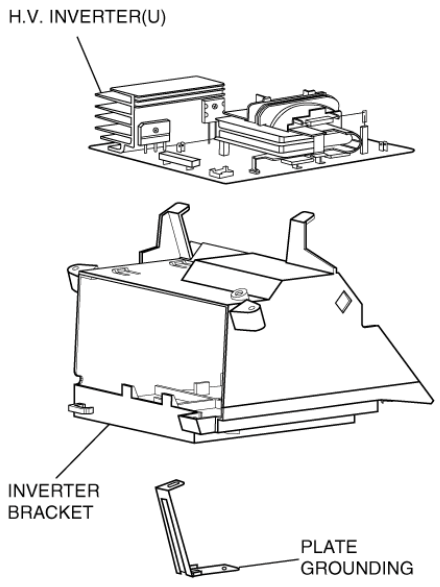
**IT HAS:**

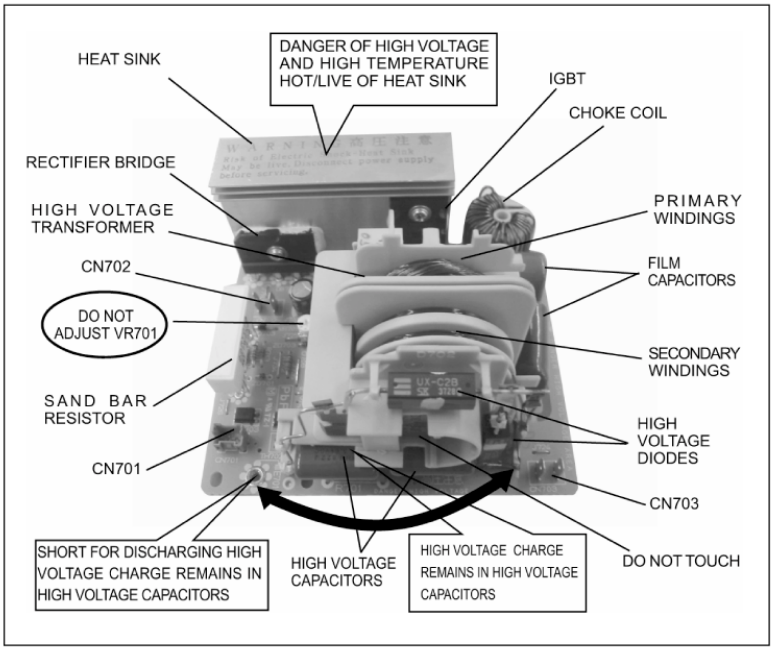
1. **Very high voltage and high current circuits.**
   **It functions the same as the high voltage transformer and high voltage capacitor in ordinary microwave ovens.**
2. **Aluminum heat sink that is energized with very high voltage and high heat energy.**
3. **Very high voltage which may remain in circuitry even when oven is off. High voltage charge may remain in the capacitors on the board.**

**DO NOT:**

* 1. **Do not touch circuitry because it has very hot (high voltage) circuitry. Even when replacing board, extreme care should be taken to avoid possible electric shock hazards. High voltage charge may remain in circuits.**
* 2. **Do not touch aluminum heat sink because it is energized with very high voltage and is also very hot in high heat energy.**
* 3. **Do not try to adjust or tamper with preset control on the Inverter board because it is very dangerous to adjust without proper test equipment.**
* 4. **Do not test oven while Inverter grounding plate or screws are loose. It is very dangerous to operate H.V. Inverter Circuit (U) with loose mounting screws or if improperly grounded.**
* 5. **For USA only:**
   **Do not try to repair Inverter PCB because it is very dangerous to repair. Replace as a complete High Voltage Inverter Circuit unit and return fully re-packed in original shipping box and shipping materials.**

## INVERTER POWER SUPPLY



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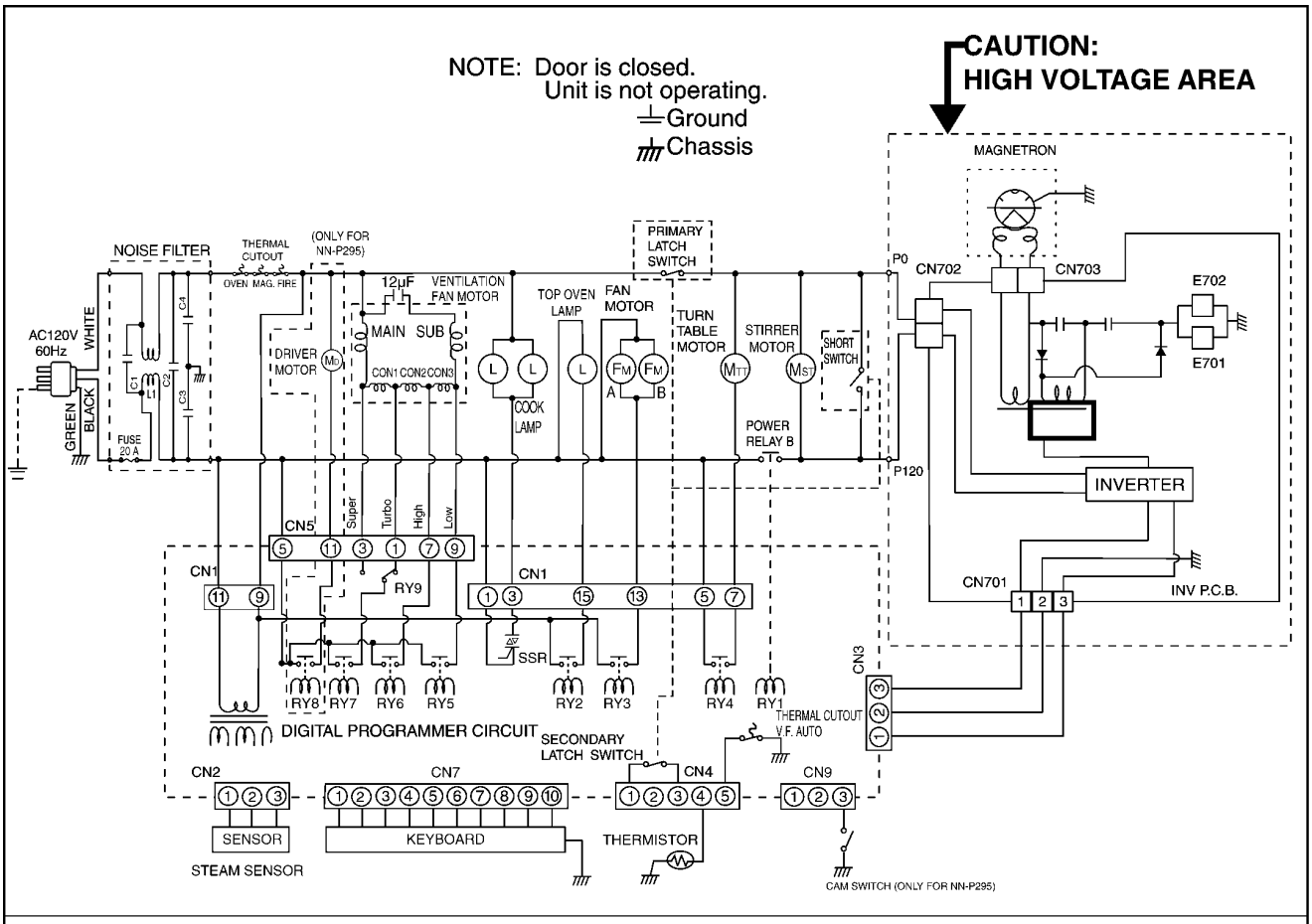
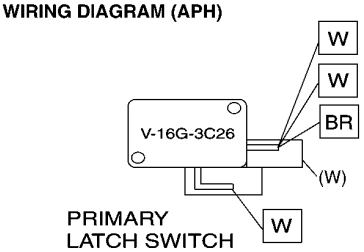
# 1 SCHEMATIC DIAGRAM

## 1.1. APH (NN-P295, H275)




**WIRING DIAGRAM (APH)**

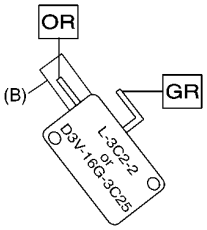



PRIMARY LATCH SWITCH TOP

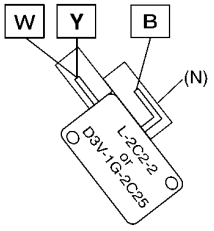
**NOTE: * When replacing, check the lead wire color as shown.**
***Colors shown by ( ) indicate colors of lead wire connector housing.**

NEW H.V.

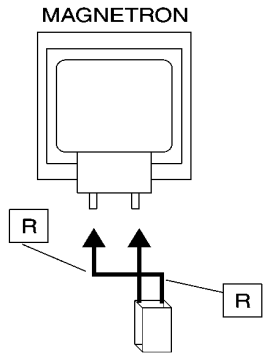
CAUTION: H.V.



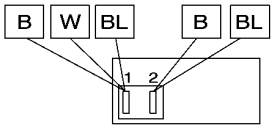

SECONDARY LATCH SWITCH BOTTOM (OUTSIDE)



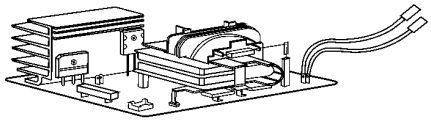

SHORT LATCH SWITCH BOTTOM (INSIDE)




| SYMBOL | COLOR |
|---|---|
| OR | ORANGE |
| BL | BLUE |
| BR | BROWN |
| W | WHITE |
| Y | YELLOW |
| R | RED |
| GR | GRAY |
| B | BLACK |
| N | NATURAL |

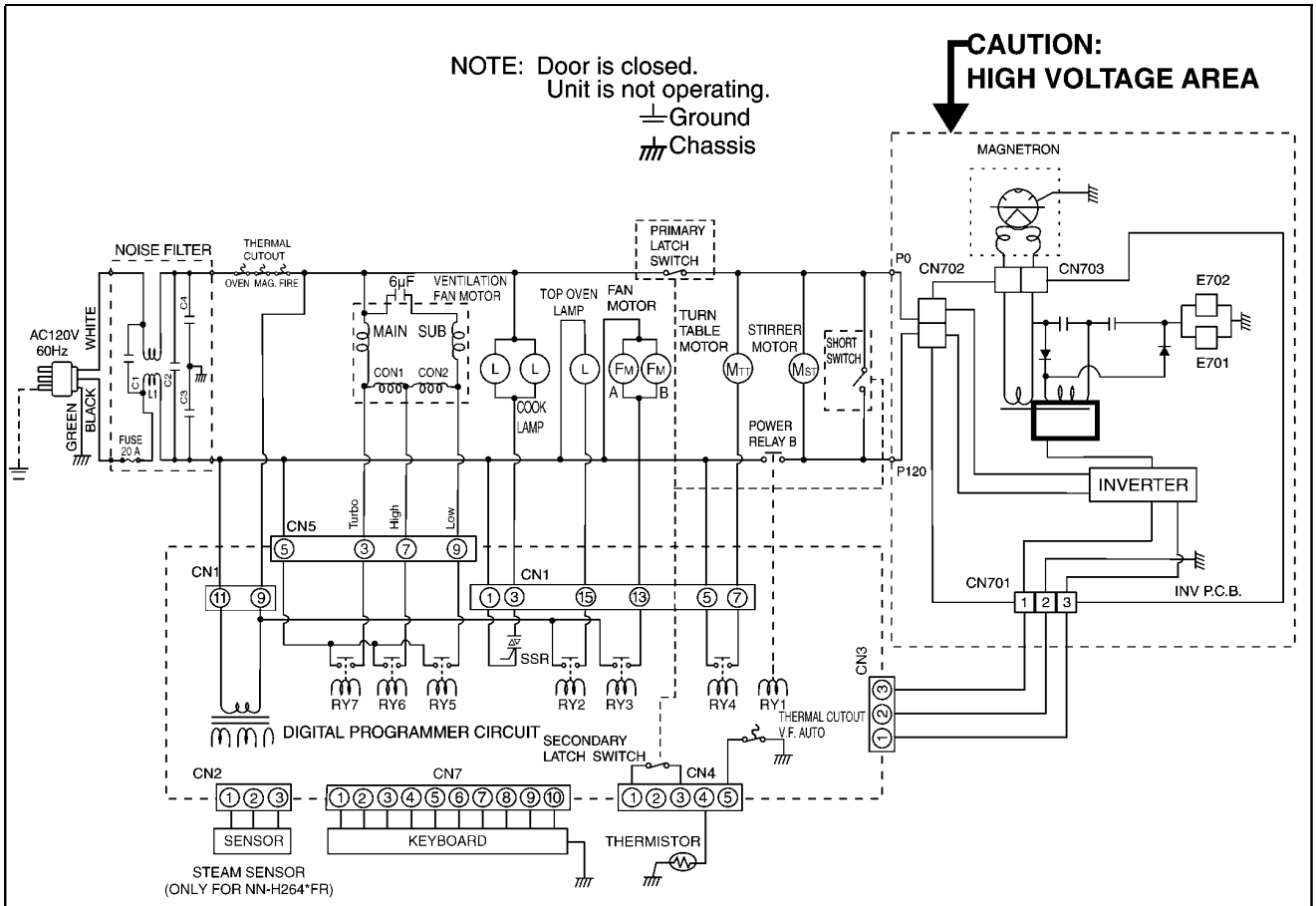



POWER RELAY B (RY1)

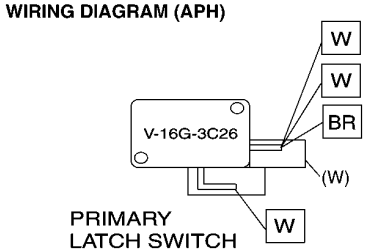


HIGH VOLTAGE INVERTER

## 1.2. APH (NN-S255)




**WIRING DIAGRAM (APH)**

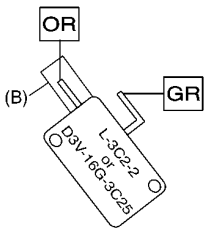



PRIMARY LATCH SWITCH TOP

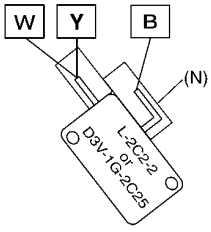
**NOTE: * When replacing, check the lead wire color as shown.**
***Colors shown by ( ) indicate colors of lead wire connector housing.**

NEW H.V.

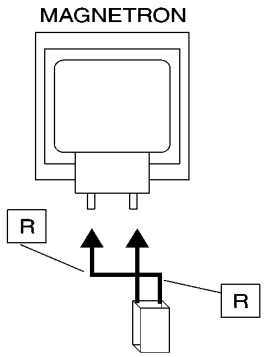
CAUTION: H.V.



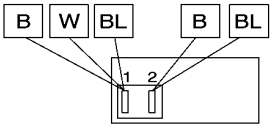

SECONDARY LATCH SWITCH BOTTOM (OUTSIDE)



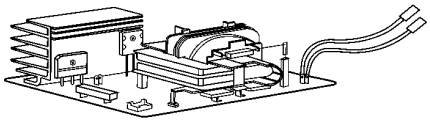

SHORT LATCH SWITCH BOTTOM (INSIDE)




| SYMBOL | COLOR |
|---|---|
| OR | ORANGE |
| BL | BLUE |
| BR | BROWN |
| W | WHITE |
| Y | YELLOW |
| R | RED |
| GR | GRAY |
| B | BLACK |
| N | NATURAL |

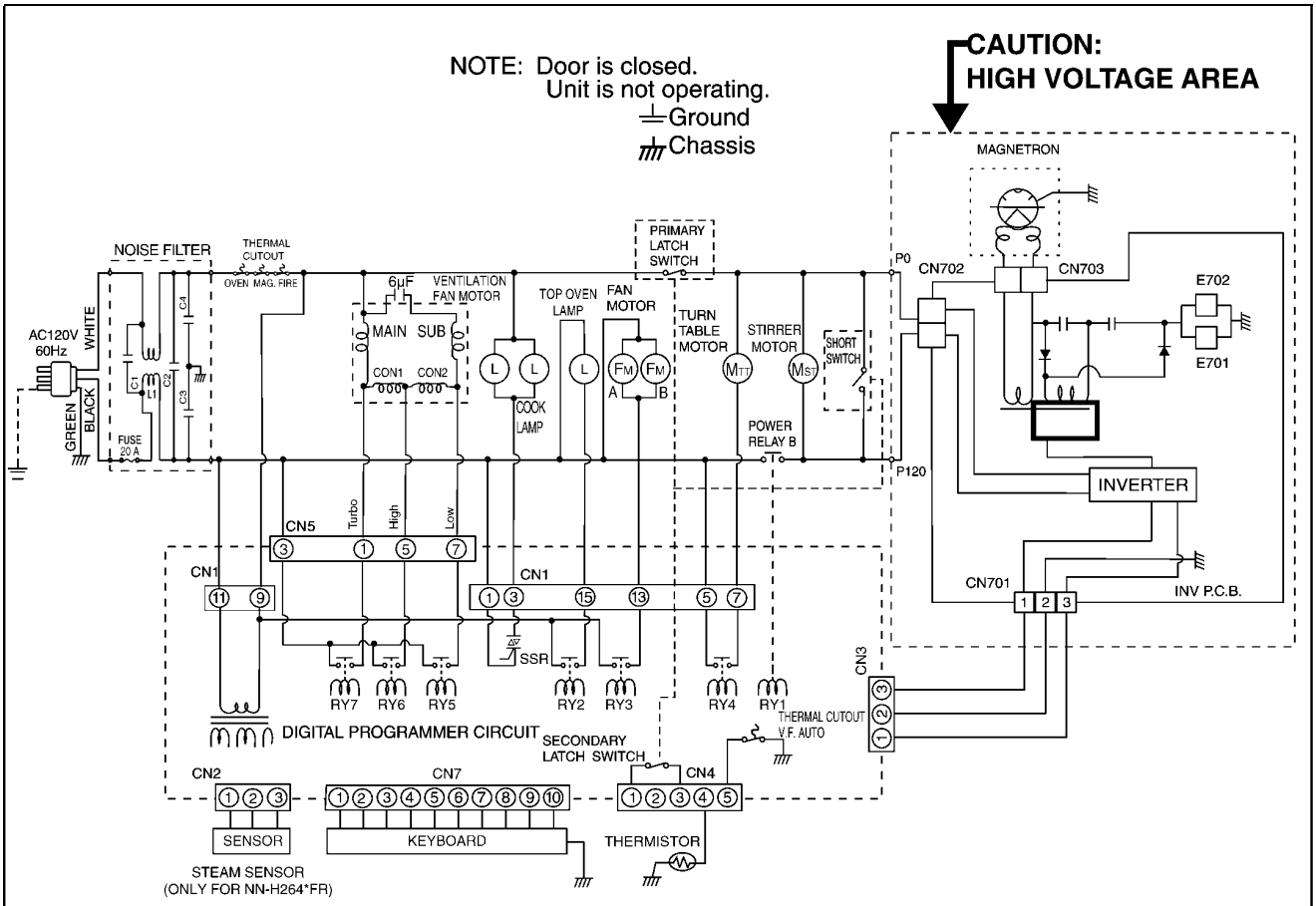



POWER RELAY B (RY1)

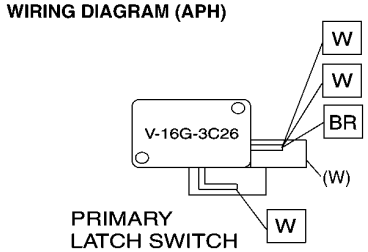


HIGH VOLTAGE INVERTER

# 1.3. APH (NN-H264*FR, S254*FR)




**WIRING DIAGRAM (APH)**

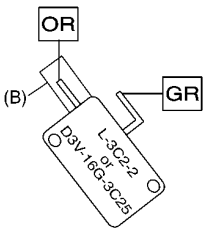



PRIMARY LATCH SWITCH TOP

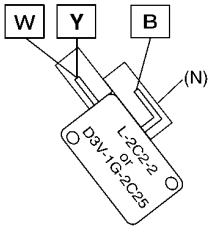
**NOTE: * When replacing, check the lead wire color as shown.**
***Colors shown by ( ) indicate colors of lead wire connector housing.**

NEW H.V.

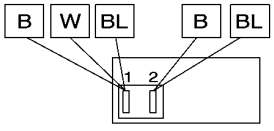
CAUTION: H.V.



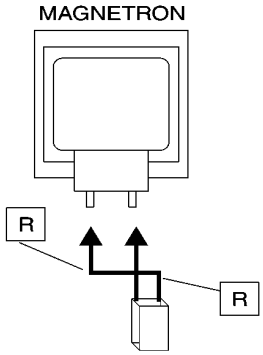

SECONDARY LATCH SWITCH BOTTOM (OUTSIDE)




SHORT LATCH SWITCH BOTTOM (INSIDE)




POWER RELAY B (RY1)




| SYMBOL | COLOR |
|---|---|
| OR | ORANGE |
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| BR | BROWN |
| W | WHITE |
| Y | YELLOW |
| R | RED |
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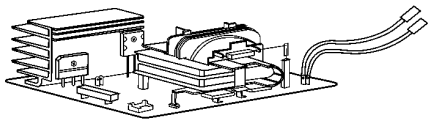
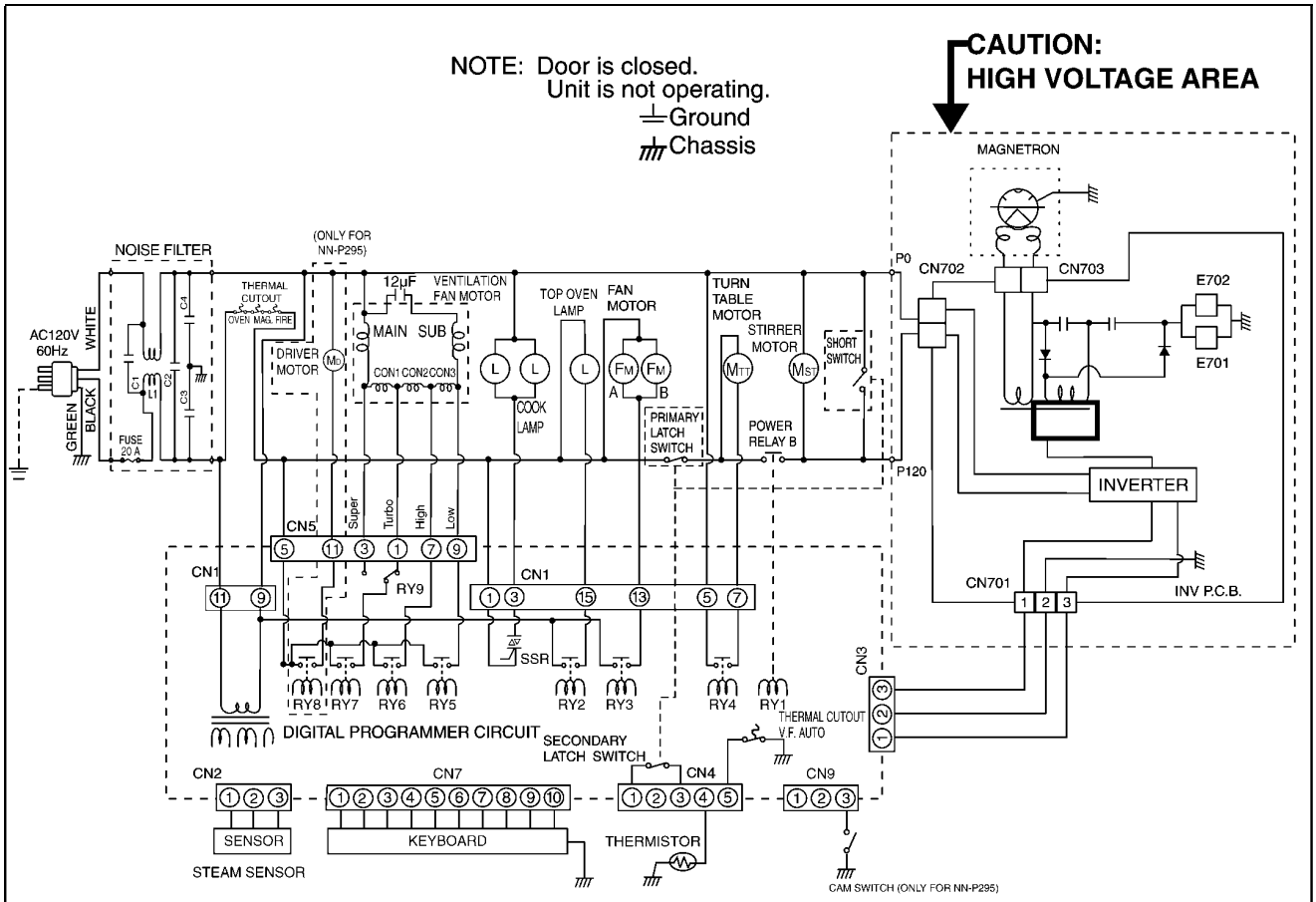
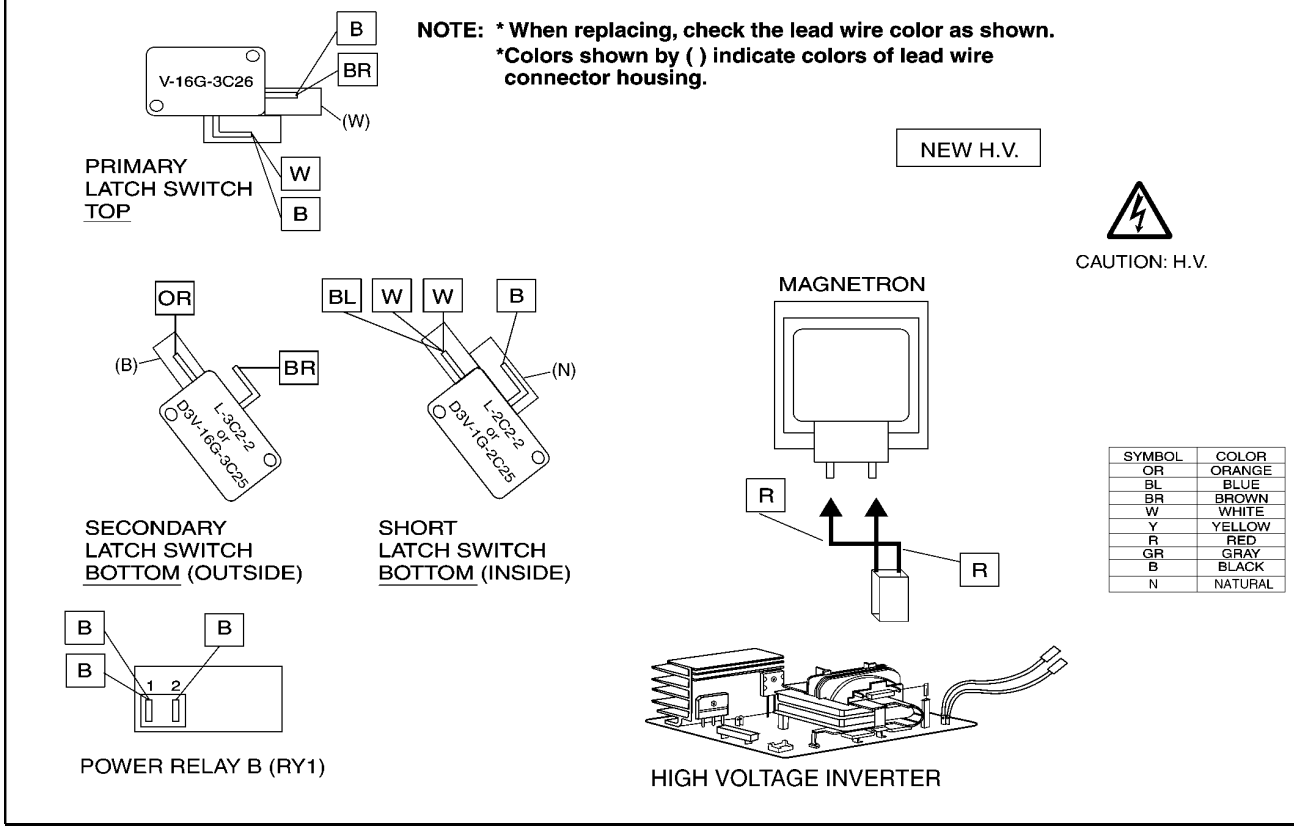


HIGH VOLTAGE INVERTER

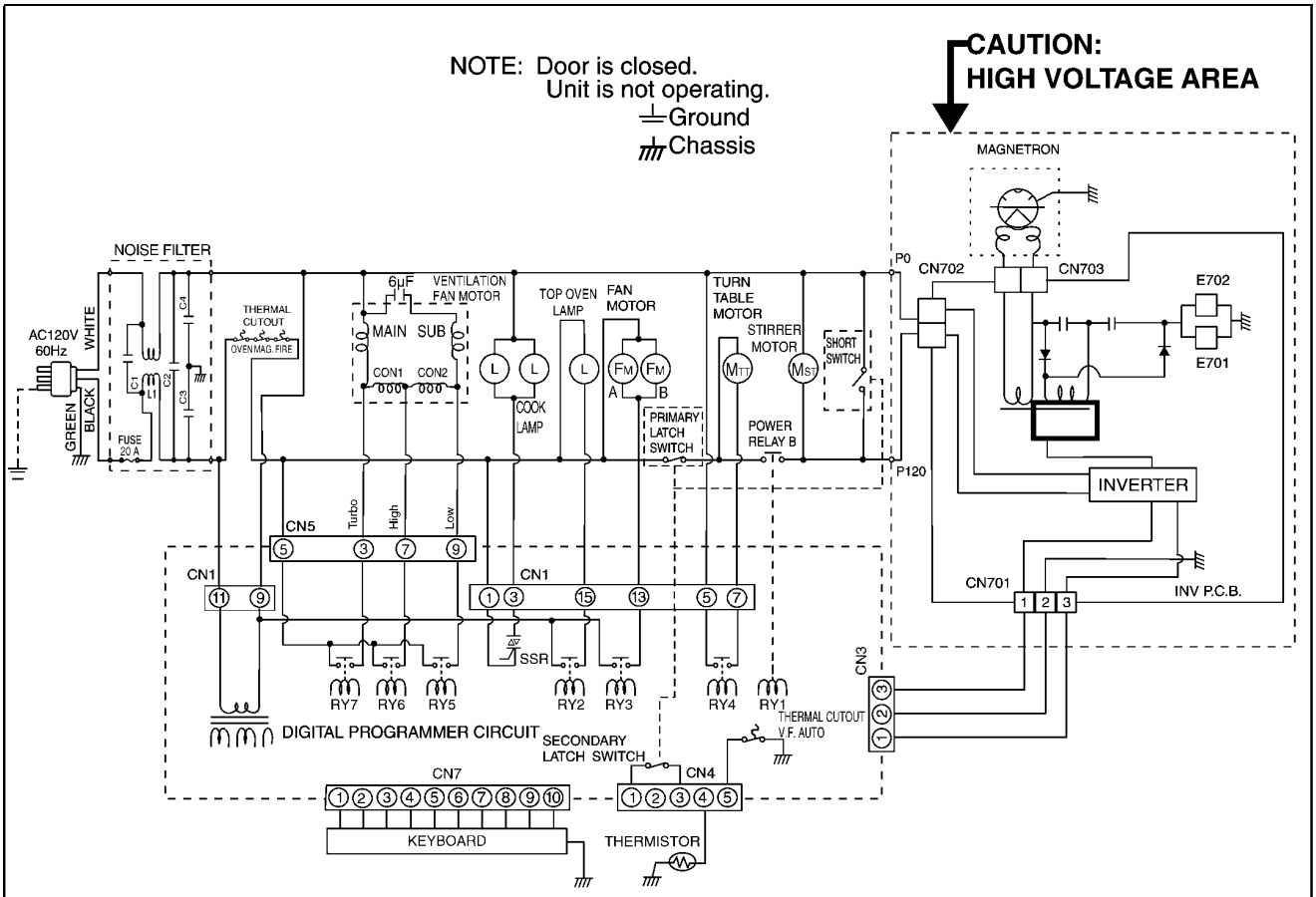
# 1.4. CPH (NN-P295, H275)



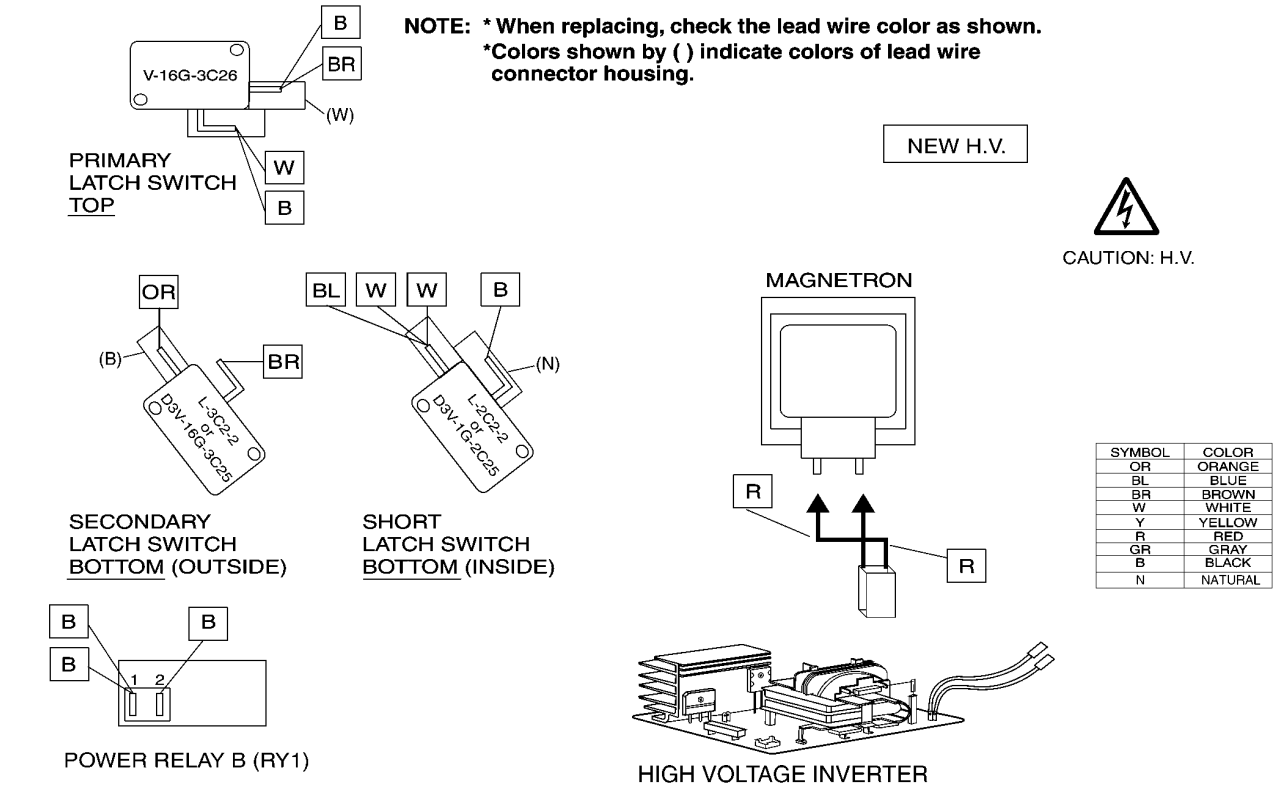

**WIRING DIAGRAM (CPH)**



# 1.5. CPH (NN-S255, S245)




**WIRING DIAGRAM (CPH)**



# 2 MEASUREMENTS AND ADJUSTMENTS

**WARNING**

* For continued protection against radiation hazard, replace only with identical replacement parts (For touch models Part No. J61424T00AP, Type No. V-15G-3C25 for Primary latch switch; Part No. J61414T00AP, Type No. D3V-16G-3C25 for Secondary latch switch and Part No. J61784T00AP, Type No. D3V-1G-2C25 for short switch.)
* When the 20 Amp. fuse is blown due to the operation of the short switch, you must replace power relay B (Part No. AEGG5G1A18, Type No. G5G-1A12VDC), Primary latch switch and the short switch. Then follow the installation procedures below.
* Interlock switch replacement In replacing faulty switches, be sure mounting tabs are not bent, broken or otherwise deficient in their ability to hold the switches.
* Refer to schematic diagram to ensure proper connection.

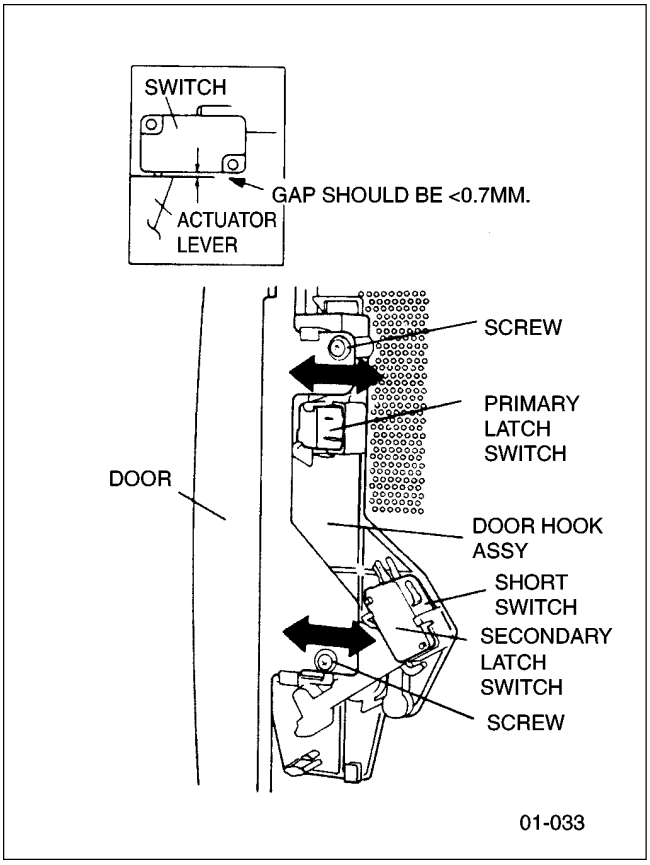
## 2.1. Adjustment of primary latch switch, secondary latch switch and short switch.

1. Mount the Primary latch switch, the Secondary latch switch and the short switch to the door hook assembly as shown in ILL.

   **NOTE:**

   **No specific individual adjustments during installation of the Primary latch switch, Secondary latch switch or Short switch to the door hook are required.**

2. When mounting the door hook assembly to the oven assembly, adjust the door hook assembly by moving it in the direction of the arrows in the illustration so that the oven door will not have any play in it. Check for play in the door by pulling the door assembly. Make sure that the latch keys move smoothly after adjustment is completed. Completely tighten the screws holding the door hook assembly to the oven assembly.
3. Reconnect the short switch and check the continuity of the monitor circuit and all latch switches again by following the component test procedures.




## 2.2. Measurement of microwave output

The output power of the magnetron can be determined by performing IEC standard test procedures. However,due to the complexity of IEC test procedures, it is recommended to test the magnetron using the simple method outlined below.

Necessary Equipment:

*1 liter beaker *Glass thermometer
*Wrist watch or stopwatch

**NOTE:**

**Check the line voltage under load.Low voltage will lower the magnetron output. Take the temperature readings and heating time as accurately as possible.**

1. Fill the beaker with exactly one liter of tap water.Stir the water using the thermometer and record the water's temperature. (recorded as T1).
2. Place the beaker on the center of glass tray.
   Set the oven for High power and heat it for exactly one minute.
3. Stir the water again and read the temperature of the water. (recorded as T2).
4. The normal temperature rise at High power level for each model is as shown in table.

**TABLE (1L-1min.test)**

| RATED OUTPUT | TEMPERATURE RISE |
|---|---|
| 1100W | Min. 16.9°F(9.4°C) |
| 1200W | Min. 18.5°F(10.3°C) |

# 3 PROCEDURE FOR MEASURING MICROWAVE ENERGY LEAKAGE

**WARNING**

Check for radiation leakage after every servicing. Should the leakage be more than 2 mW/cm$^2$ (1mW/cm$^2$ for Canada) inform PASC, PSC, or PCI immediately. After repairing or replacing any radiation safety device, keep a written record for future reference, as required by D.H.H.S. and Health and Welfare Canada regulation. This requirement must be strictly observed. In addition, the leakage reading must be recorded on the service repair ticket while in the customer's home.

**NOTE:**

**The U.S. Government standard is 5 mW/cm$^2$ while in the customer's home. 2mW/cm$^2$ stated here is our own voluntary standard. (1mW/cm$^2$ for Canada)**

## 3.1. Equipment

- Electromagnatic radiation monitor
- Glass thermometer 212°F or 100°C
- 600cc glass beaker

## 3.2. Procedure for measuring radiation leakage

Note before measuring.

- Do not exceed meter full scale deflection. Leakage monitor should initially be set to the highest scale.
- To prevent false readings the test probe should be held by the grip portion of the handle only and moved along the shaded area in Figure no faster than 1 inch/sec (2.5cm/sec).
- Leakage with the outer panel removed ..... less than 5mW/cm$^2$.
- Leakage for a fully assembled oven with door normally closed ..... less than 2mW/cm$^2$ (1mW/cm$^2$ for Canada).
- Leakage for a fully assembled oven [Before the latch switch (primary) is interrupted] while pulling the door ..... less than 2mW/cm$^2$.

1. Pour 275 ± 15cc (9ozs$^s$± 1/2oz) of 20°C ± 5°C (68° ± 9°F) water in a beaker which is graduated to 600cc, and place in the center of the oven.
2. Set the radiation monitor to 2450MHz and use it following the manufacturer´s recommended test procedure to assure correct results.
3. When measuring the leakage, always use the 2 inch (5cm) spacer supplied with the probe.
4. Tap the start pad or set the timer and with the magnetron oscillating, measure the leakage by holding the probe perpendicular to the surface being measured.

### 3.2.1. Measurement with the outer panel removed.

Whenever you replace the magnetron, measure for radiation leakage before the outer panel is installed and after all necessary components are replaced or adjusted. Special care should be taken in measuring around the magnetron.

**WARNING**

Avoid contacting any high voltage parts.

### 3.2.2. Measurements with a fully assembled oven.

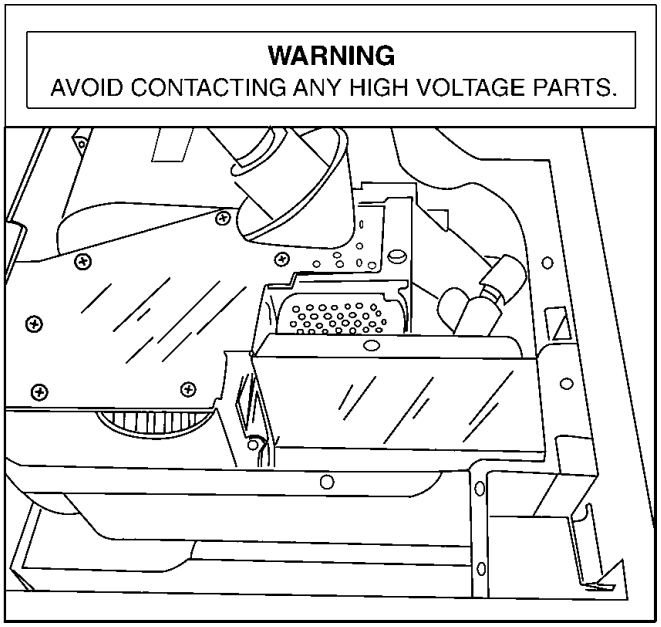
After all components, including outer panel are fully assembled, measure for radiation leakage around the door periphery, the door viewing window, the exhaust opening and air inlet openings.

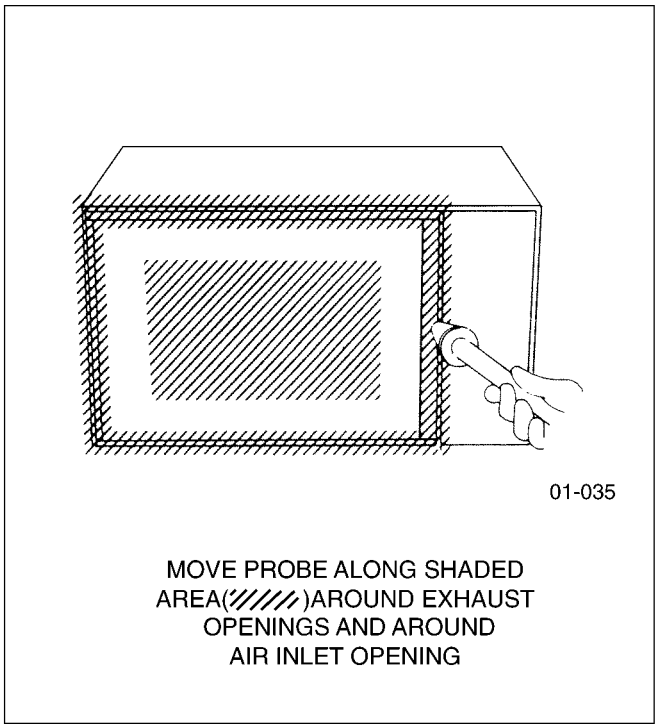
## 3.3. Record keeping and notification after measurement

- After any adjustment or repair to a microwave oven, a leakage reading must be taken. Record this leakage reading on the repair ticket even if it is zero.

  A copy of this repair ticket and the microwave leakage reading should be kept by repair facility.
- Should the radiation leakage be more than 2 mW/cm$^2$ (1mW/cm for Canada) after determining that all parts are in good condition, functioning properly, and genuine replacement parts as listed in this manual have been used, immediately notify PASC, PSC or PCI.

## 3.4. At least once a year, have the radiation monitor checked for calibration by its manufacturer.



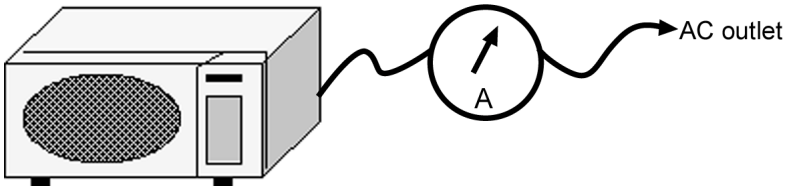
# 4 SIMPLE WAY OF H.V. INVERTER/MAGNETRON TROUBLESHOUTING

**Purpose:**

Simple way **(3/23 seconds rule)** of identifying whether it's Magnetron, Inverter, or others.

**Set-up:**

The unit under question is connected through the Ammeter as shown below.




**Procedure:**

Follow the matrix table below to identify the problem source.

**Note:**

**Do not replace both Inverter board and Magnetron simultaneously and automatically without going through this procedure.**

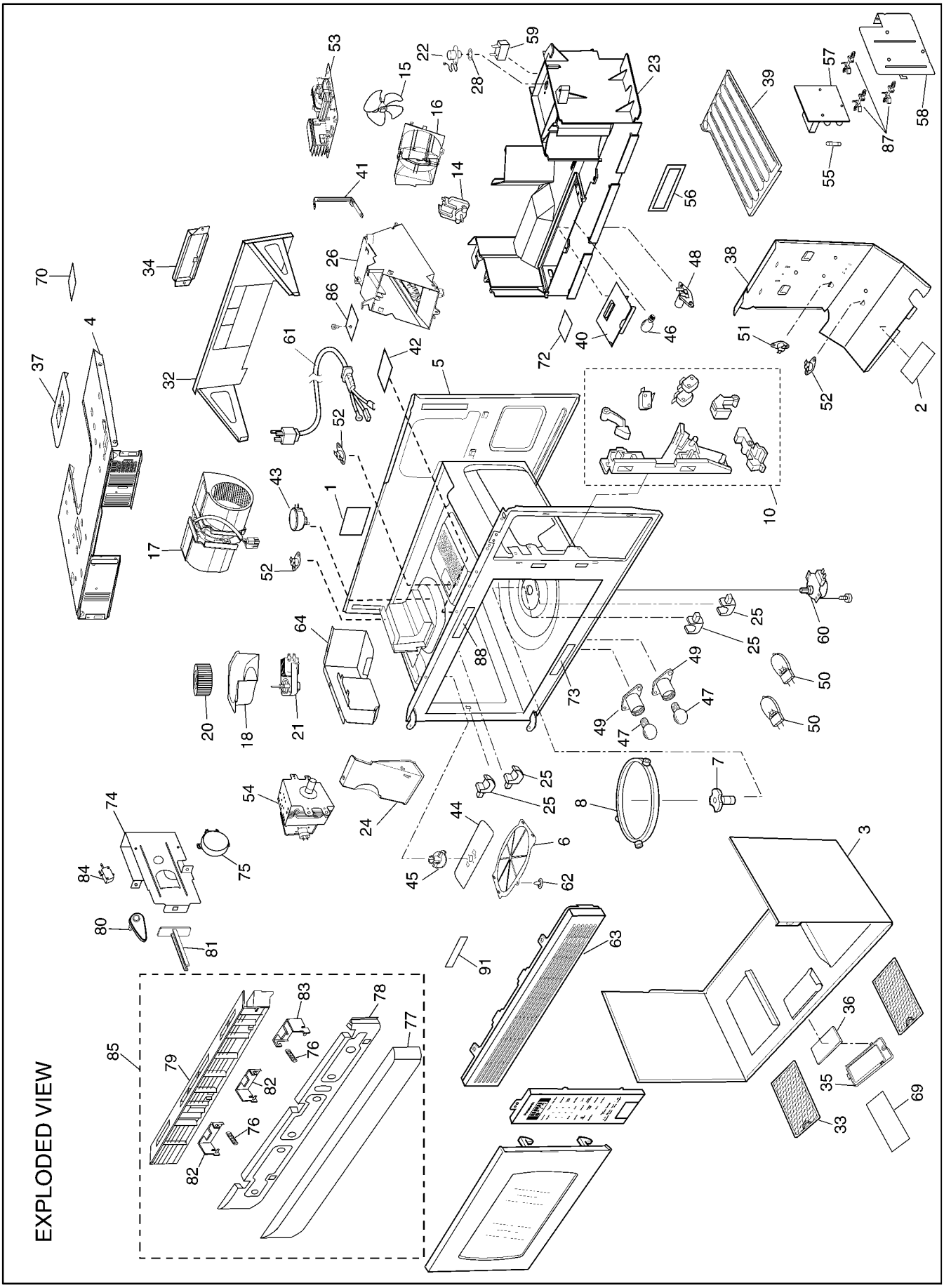
| Power will: | Ammeter reading is: | To do: | Remedy: |
|---|---|---|---|
| Shut off in 23 seconds after "Start". | 1. Between 0.5A and 1.0A. | Check and repair open magnetron circuit | Open magnetron wiring between Inverter and magnetron terminal. |
| | 2. Between 1.0A and 2.0A. | Check continuity of D702 in Inverter PCB. | |
| | | ⇩ | |
| | | 1. D702 shorted | Replace **H.V.Inverter** (F606Y6G00AP/F606Y6G00CP) |
| | | 2. D702 is OK | Replace **magnetron** |
| Shut off in 3 seconds after "Start" | 1. Less than 0.5A | Check open circuit: Latch Switch, DPC, Power Relay and CN701 | Replace defective component(s), or correct switch, cables and connectors. |

# 5 H.V.INVERTER BOARD MAIN PARTS LIST (F606Y6G00AP/F606Y6G00CP)

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| C707 | | ECWH30822JUA | CAPACITOR | 1 | 8200PF,3000VDC |
| C706 | | ECWH30562JUA | CAPACITOR | 1 | 5600PF,3000VDC |
| D701,D702 | ⚠ | B0FBAZ000001 | DIODE SI | 2 | |
| DB701 | | B0FBBS000001 | BRIDGE DIODE | 1 | 20A,600V |
| L701 | | F50206G00AP | CHOKE COIL | 1 | |
| Q701 | | B1JAGV000008 | TRANSISTOR SI | 1 | 900V |
| T701 | | A609A6G00AP | H.V. TRANSFORMER | 1 | |

# 6 EXPLODED VIEW AND PARTS LIST

## 6.1. EXPLODED VIEW



# 6.2. PARTS LIST

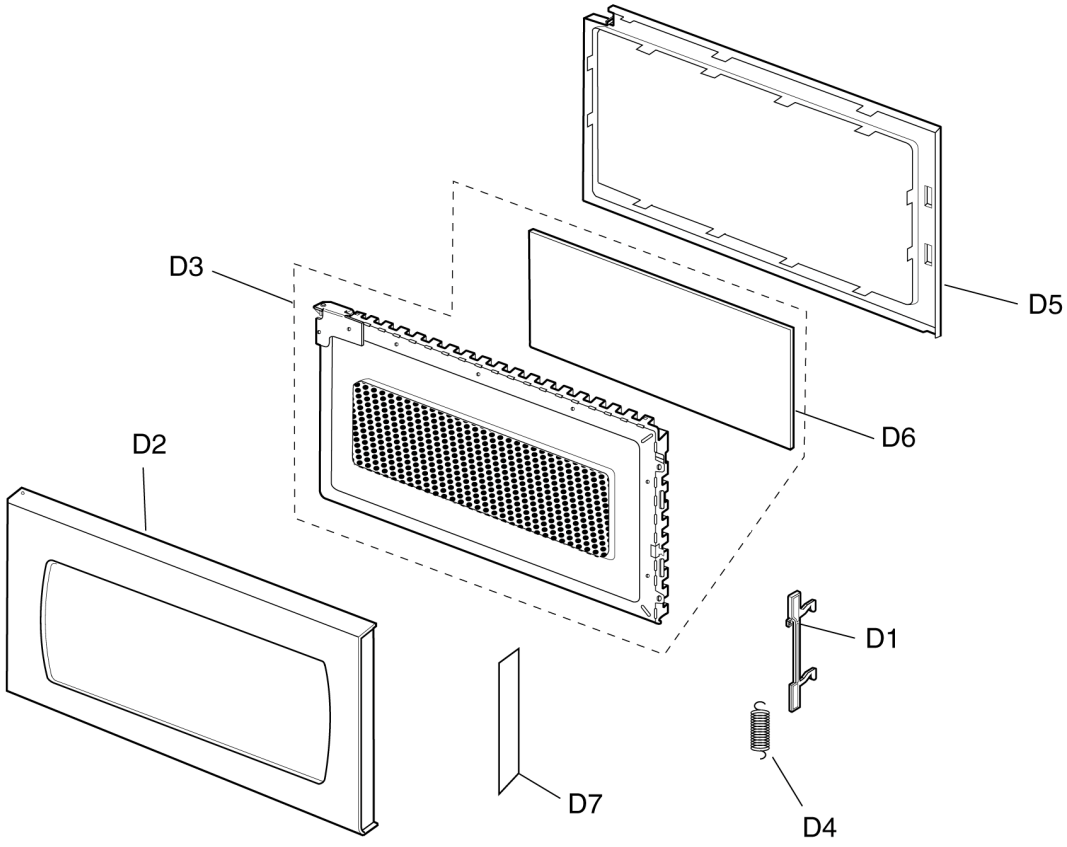
**NOTE:**

1. When ordering replacement part(s), please use part number(s) shown in this part list.
   Do not use description of the part.
2. Important safety notice:
   Components identified by ⚠ mark have special characteristics important for safety.
   When replacing any of these components, use only manufacture's specified parts.

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| 1 | | F00205H00AP | CAUTION LABEL | 1 | APH |
| 1 | | F00067600CP | CAUTION LABEL | 1 | CPH |
| 2 | | F00336Z00AP | FUSE LABEL | 1 | |
| 3 | | F110D6Z00SAP | CABINET BODY (U) | 1 | P295SF APH,H264SFR APH,S254SFR APH |
| 3 | | F110D6Z00SCP | CABINET BODY (U) | 1 | P295SF CPH |
| 3 | | F110D6Z00BAP | CABINET BODY (U) | 1 | P295BF,H275SF/BF,S255BF,S245BF,H264BFR,S254BFR |
| 3 | | F110D6Z00HAP | CABINET BODY (U) | 1 | P295WF,H275WF,S255WF,S245WF,H264WFR,S254WFR |
| 3 | | F110D6Z00QAP | CABINET BODY (U) | 1 | H275QF |
| 4 | | F100D6Z00AP | BASE PLATE (U) | 1 | P295 APH/CPH |
| 4 | | F100D6Z80AP | BASE PLATE (U) | 1 | EXCEPT P295 APH/CPH |
| 5 | ⚠ | F201A6F00AP | OVEN (U) | 1 | P295 APH/CPH,H275 APH/CPH,S255 CPH,H264*FR APH |
| 5 | ⚠ | F201A6F20AP | OVEN (U) | 1 | S255 APH,S245 CPH,S254*FR APH |
| | | | | | |
| 6 | | F20115H00AP | COVER | 1 | |
| 7 | | F21314Y00AP | PULLY SHAFT | 1 | |
| 8 | | F290D5Q00AP | ROLLER RING (U) | 1 | |
| 10 | ⚠ | E393C8000BP | DOOR HOOK (U) | 1 | |
| | | | | | |
| 14 | | F40016Z00AP | FAN MOTOR A | 1 | FOR INVERTER (U) COOLING |
| 15 | | F40085H00AP | FAN BLADE | 1 | FOR INVERTER (U) COOLING |
| | | | | | |
| 16 | | F40256Z00AP | ORIFICE | 1 | |
| 17 | | F401W6Z00AP | BLOWER MOTOR (U) | 1 | P295 APH/CPH,H275 APH/CPH |
| 17 | | F401W6Z60AP | BLOWER MOTOR (U) | 1 | S255 APH/CPH,S245 CPH,H264*FR APH,S254*FR APH |
| 18 | | F42486Z00AP | FAN CASE C | 1 | |
| 20 | | F42505H00AP | SIROCCO FAN C | 1 | |
| | | | | | |
| 21 | | F42676F00AP | FAN MOTOR B | 1 | FOR MAGNETRON COOLING |
| 22 | | F601L6F00AP | SENSOR (BU) | 1 | P295 APH/CPH,H275 APH/CPH,H264*FR APH |
| 23 | | F40246Z00AP | EXHAUST GUIDE A | 1 | |
| 24 | | F44775H00AP | EXHAUST GUIDE | 1 | |
| 25 | | F20025H00AP | RACK SUPPORT | 4 | P295 APH/CPH,H275 APH/CPH,S255 CPH, H264*FR APH |
| | | | | | |
| 26 | | F65856Z00AP | INVERTER BRACKET | 1 | |
| 28 | | F62386F00AP | WASHER | 1 | |
| | | | | | |
| 32 | | F100T5H00AP | BACK PLATE (BU) | 1 | |
| 33 | | F400B6Z00AP | FILTER (U) | 2 | |
| 34 | | F400K5H00AP | EXHAUST ADAPTER | 1 | |
| 35 | | F63175H00SAP | LAMP HOLDER | 1 | P295SF APH,H264SFR,S254SFR |
| 35 | | F63176F00SAP | LAMP HOLDER | 1 | P295SF CPH |
| 35 | | F63175H10BAP | LAMP HOLDER | 1 | P295BF,H275SF/BF,S255BF,S245BF, H264BFR,S254BFR |
| 35 | | F63175H10HAP | LAMP HOLDER | 1 | P295WF,H275WF,S255WF,S245WF, H264WFR,S254WFR |
| 35 | | F63175V20QAP | LAMP HOLDER | 1 | H275QF |
| | | | | | |
| 36 | | F64375H00AP | GLASS PLATE | 1 | |
| 37 | | F41586Z00AP | FAN INSTALLATION PLATE | 1 | |
| 38 | | F42176Z00AP | COVER PLATE | 1 | |
| 39 | | F42205H00AP | COVER PLATE B | 1 | |
| 40 | | F607V6Z00AP | LAMP COVER (U) | 1 | |
| | | | | | |
| 41 | | F61846Z00AP | GROUNDING PLATE | 1 | |
| 42 | | F60405H00AP | LAMP MEMBRANE | 1 | |
| 43 | | F61446Z00AP | STIRRER MOTOR | 1 | |
| 44 | | F20155H00AP | STIRRER | 1 | |
| 45 | | F20165H00AP | ANTENNA SUPPORT | 1 | |
| | | | | | |
| 46 | | F60305H00AP | INCANDESCENT LAMP | 1 | |
| 47 | | F60305H00AP | INCANDESCENT LAMP | 2 | EXCEPT P295 APH/CPH |
| 48 | | F61525H00AP | SOCKET | 1 | |
| 49 | | F61525H00AP | SOCKET | 2 | EXCEPT P295 APH/CPH |
| 50 | | F67536Z00AP | HEAD LAMP | 2 | P295 APH/CPH |
| | | | | | |

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| 51 | | F61456F00AP | THERMAL CUTOUT | 1 | |
| 52 | | F61456N60AP | THERMAL CUTOUT | 3 | |
| 53 | ⚠ | F606Y6G00AP | H.V.INVERTER (U) | 1 | |
| 54 | ⚠ | 2M261-M32F | MAGNETRON | 1 | APH |
| 54 | ⚠ | 2M261-M32J | MAGNETRON | 1 | CPH |
| 55 | ⚠ | F62307A00AP | FUSE | 1 | 20A/125V |
| | | | | | |
| 56 | | F400B6Z20AP | CARBON FILTER (U) | 1 | |
| 57 | | J692Y7D00AP | NOISE FILTER (U) | 1 | APH |
| 57 | | J692Y4T00CPR | NOISE FILTER (U) | 1 | CPH |
| 58 | | F68006Z00AP | NOISE FILTER BRACKET | 1 | |
| 59 | | F66986Z00AP | MOTOR CAPACITOR | 1 | P295 APH/CPH,H275 APH/CPH |
| 59 | | F66985H00AP | MOTOR CAPACITOR | 1 | S255 APH/CPH,S245 CPH,H264*FR APH,S254*FR APH |
| 60 | | F63266F00AP | TURNTABLE MOTOR | 1 | |
| | | | | | |
| 61 | ⚠ | F900C6Z00AP | AC CORD W/PLUG | 1 | APH |
| 61 | ⚠ | F900C6Z00CP | AC CORD W/PLUG | 1 | CPH |
| 62 | | F90804W00AP | CANOE CLIP | 1 | FOR COVER |
| 63 | | F101V6Z20SAP | VENT GRILLE (U) | 1 | H275SF |
| 63 | | F101V6Z30BAP | VENT GRILLE (U) | 1 | H275BF,S255BF |
| 63 | | F101V6Z30HAP | VENT GRILLE (U) | 1 | H275WF,S255WF |
| 63 | | F101V6Z30QAP | VENT GRILLE (U) | 1 | H275QF |
| 63 | | F101V6F10SAP | VENT GRILLE (U) | 1 | H264SFR,S254SFR |
| 63 | | F101V6F10BAP | VENT GRILLE (U) | 1 | S245BF,H264BFR,S254BFR |
| 63 | | F101V6F10HAP | VENT GRILLE (U) | 1 | S245WF,H264WFR,S254WFR |
| 64 | | F48436Z00AP | INHALE GUIDE A | 1 | |
| | | | | | |
| 69 | | F01725H00AP | CAUTION LABEL | 1 | |
| 70 | | F00565H00AP | CAUTION LABEL | 1 | |
| | | | | | |
| 72 | | F00725H00AP | CAUTION LABEL | 1 | |
| 73 | | F03346Z20AP | MENU LABEL | 1 | H275 APH |
| 73 | | F03346Z20CP | MENU LABEL | 1 | H275 CPH |
| 74 | | F66396F00AP | MOTOR INSTALLATION BRACKET | 1 | P295 APH/CPH |
| 75 | | F63266F00AP | DRIVE MOTOR | 1 | P295 APH/CPH |
| | | | | | |
| 76 | | F11736F00AP | SPRING | 2 | P295 APH/CPH |
| 77 | | F11196F00SAP | VENT GRILLE OSTENTATIOUS COVER | 1 | P295SF APH/CPH |
| 77 | | F11196Z00BAP | VENT GRILLE OSTENTATIOUS COVER | 1 | P295BF APH/CPH |
| 77 | | F11196Z00HAP | VENT GRILLE OSTENTATIOUS COVER | 1 | P295WF APH/CPH |
| 78 | | F11206F00AP | VENT GRILLE INSTALLATION BRACKET | 1 | P295 APH/CPH |
| 79 | | F11176F00SAP | VENT GRILLE | 1 | P295SF,P295BF |
| 79 | | F11176Z00HAP | VENT GRILLE | 1 | P295WF |
| 80 | | F48236F00AP | CAM | 1 | P295 APH/CPH |
| | | | | | |
| 81 | | F48246F00AP | SHAFT | 1 | P295 APH/CPH |
| 82 | | F111B6F00AP | BACKSTOP AU | 2 | P295 APH/CPH |
| 83 | | F111C6F00AP | BACKSTOP BU | 1 | P295 APH/CPH |
| 84 | | J61424T00AP | MICRO SWITCH | 1 | P295 APH/CPH |
| 85 | | F101V6Z00SAP | VENT GRILLE (U) | 1 | P295SF APH |
| 85 | | F101V6F00SAP | VENT GRILLE (U) | 1 | P295SF CPH |
| 85 | | F101V6Z00BAP | VENT GRILLE (U) | 1 | P295BF |
| 85 | | F101V6Z00HAP | VENT GRILLE (U) | 1 | P295WF |
| | | | | | |
| 86 | | F90356Z00AP | AC CORD FIXING PLATE | 1 | |
| 87 | | A66135H00AP | BRACKET A | 3 | |
| 88 | | F04466Z20AP | FUNCTION LABEL | 1 | H275 APH |
| 88 | | F04466Z20CP | FUNCTION LABEL | 1 | H275 CPH |
| 91 | | F01956F10AP | CAUTION LABEL | 1 | P295 APH |
| 91 | | F01956F10CP | CAUTION LABEL | 1 | P295 CPH |

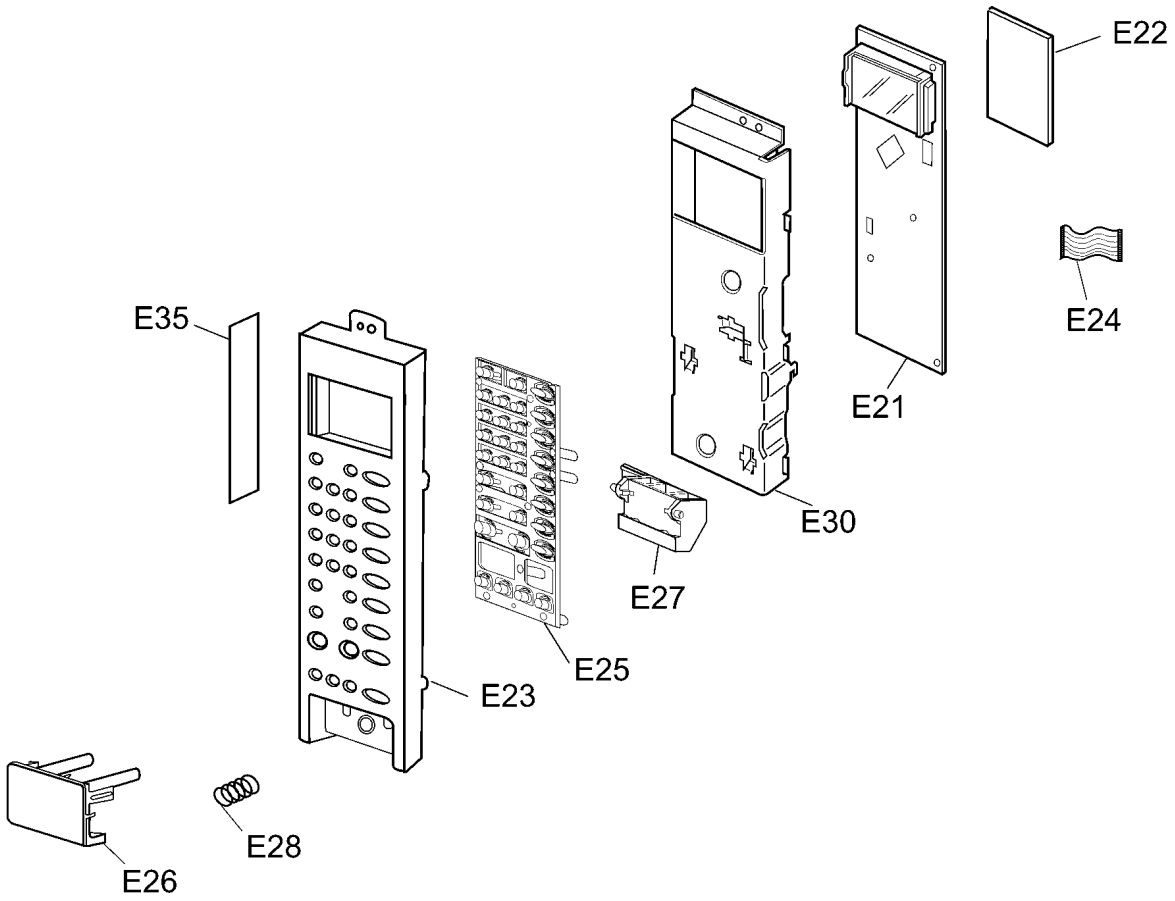
## 6.3. DOOR ASSEMBLY




| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| D1 | | F3018-1200 | DOOR KEY A | 1 | |
| D2 | ⚠ | F302A6F00SAP | DOOR A (U) | 1 | P295SF APH/CPH |
| D2 | ⚠ | F302A6Z00BAP | DOOR A (U) | 1 | P295BF APH/CPH |
| D2 | ⚠ | F302A6Z00HAP | DOOR A (U) | 1 | P295WF APH/CPH |
| D2 | ⚠ | F302A6Z20SAP | DOOR A (U) | 1 | H275SF APH/CPH |
| D2 | ⚠ | F302A6Z30BAP | DOOR A (U) | 1 | H275BF APH/CPH,S255BF APH/CPH |
| D2 | ⚠ | F302A6Z30HAP | DOOR A (U) | 1 | H275WF APH/CPH,S255WF APH/CPH |
| D2 | ⚠ | F302A6Z30QAP | DOOR A (U) | 1 | H275QF APH/CPH |
| D2 | ⚠ | F302A5V10SAP | DOOR A (U) | 1 | H264SFR APH |
| D2 | ⚠ | F302A5V20BAP | DOOR A (U) | 1 | H264BFR APH |
| D2 | ⚠ | F302A5V20HAP | DOOR A (U) | 1 | H264WFR APH |
| D2 | ⚠ | F302A6F20SAP | DOOR A (U) | 1 | S254SFR APH |
| D2 | ⚠ | F302A6F20BAP | DOOR A (U) | 1 | S254BFR APH,S245BF CPH |
| D2 | ⚠ | F302A6F20HAP | DOOR A (U) | 1 | S254WFR APH,S245WF CPH |
| D3 | ⚠ | F302K5H00AP | DOOR E (U) | 1 | |
| D4 | | F30215G10XN | DOOR KEY SPRING | 1 | |
| D5 | ⚠ | F30855H00AP | DOOR C | 1 | |
| | | | | | |
| D6 | ⚠ | F31455H00AP | DOOR SCREEN A | 1 | |
| D7 | | F02459660AP | DHHS LABEL | 1 | APH |
| D7 | | F04114180CP | HC LABEL | 1 | CPH |

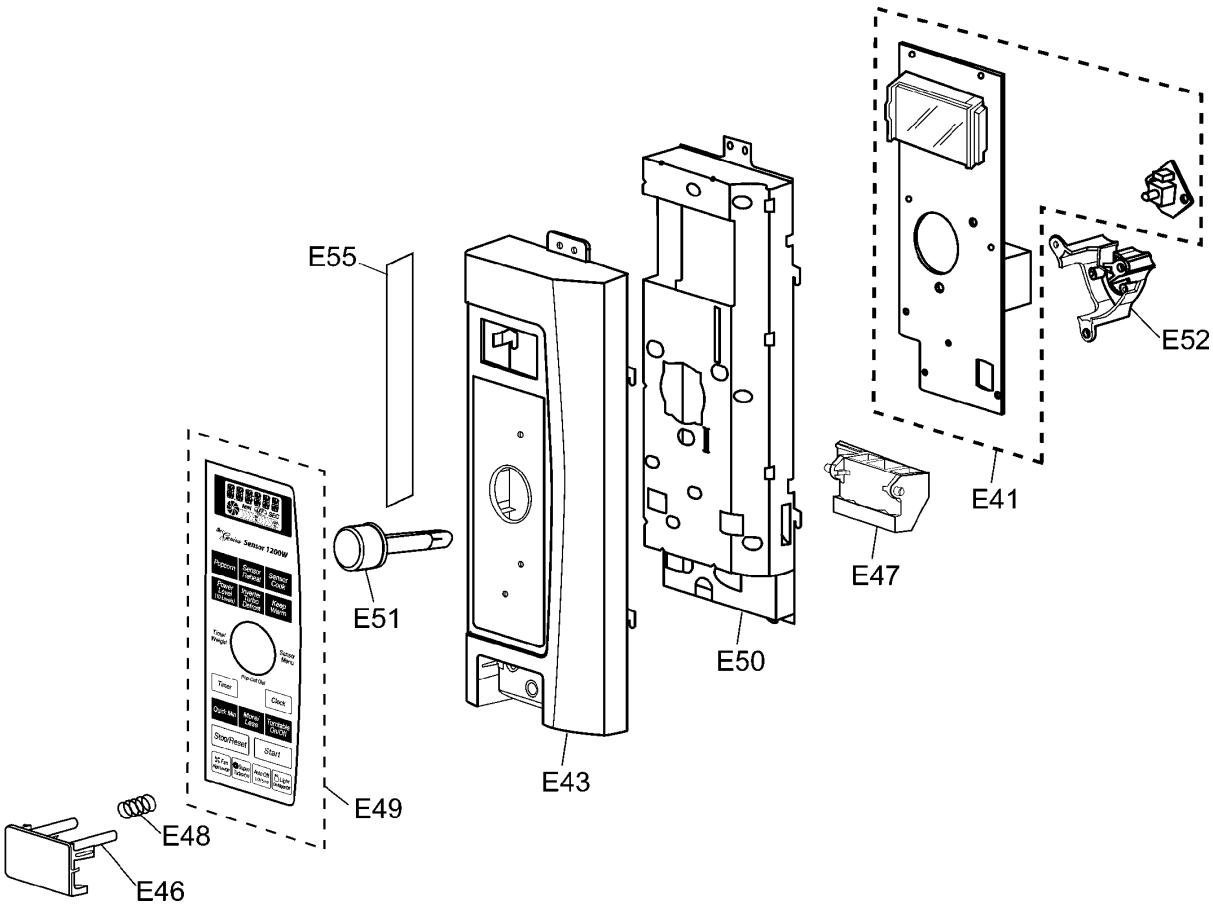
# 6.4. ESCUTCHEON BASE ASSEMBLY

## 6.4.1. NN-P295 APH/CPH



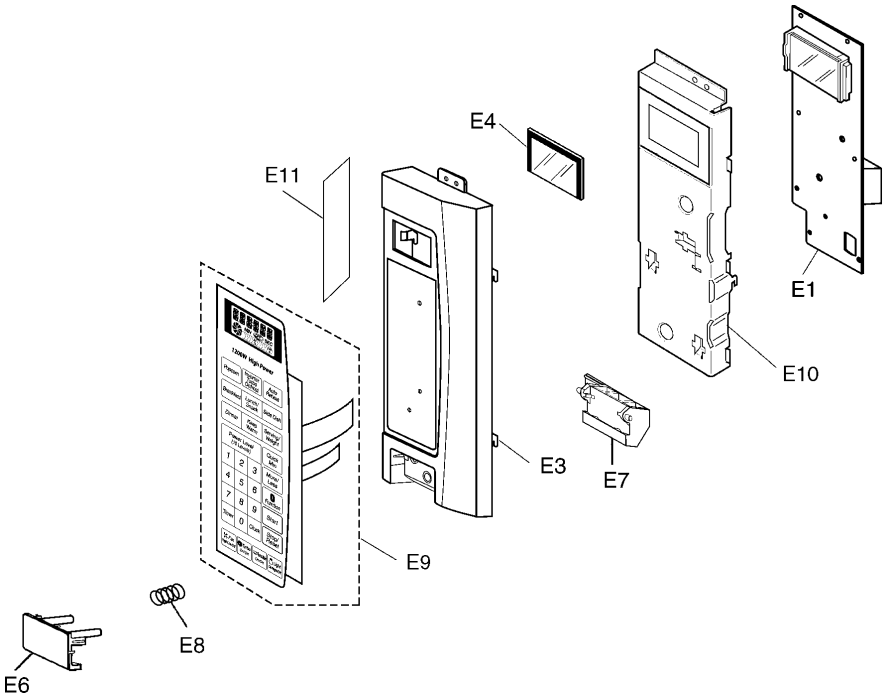

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| E21 | | F603L6Z00AP | D.P.CIRCUIT (AU) | 1 | P295SF/BF/WF APH |
| E21 | | F603L6Z00CP | D.P.CIRCUIT (AU) | 1 | P295SF/BF/WF CPH |
| E22 | | F603Y6Z00AP | D.P.CIRCUIT (DU) | 1 | P295SF/BF/WF APH |
| E22 | | F603Y6Z00CP | D.P.CIRCUIT (DU) | 1 | P295SF/BF/WF CPH |
| E23 | | F800L6Z00SAP | ESCUTCHEON BASE (U) | 1 | P295SF APH |
| E23 | | F800L6Z00BAP | ESCUTCHEON BASE (U) | 1 | P295BF APH |
| E23 | | F800L6Z00HAP | ESCUTCHEON BASE (U) | 1 | P295WF APH |
| E23 | | F800L6Z00SCP | ESCUTCHEON BASE (U) | 1 | P295SF CPH |
| E23 | | F800L6Z00BCP | ESCUTCHEON BASE (U) | 1 | P295BF CPH |
| E23 | | F800L6Z00HCP | ESCUTCHEON BASE (U) | 1 | P295WF CPH |
| E24 | | F66166Z00AP | FLAT CABLE | 1 | P295 APH/CPH |
| E25 | | F82986F00SAP | BUTTON | 1 | P295SF APH/CPH |
| E25 | | F82986Z00BAP | BUTTON | 1 | P295BF APH/CPH |
| E25 | | F82986Z00HAP | BUTTON | 1 | P295WF APH/CPH |
| E26 | | F891P6F00SAP | DOOR OPENING BUTTON | 1 | P295SF APH/CPH |
| E26 | | F891P6Z00BAP | DOOR OPENING BUTTON | 1 | P295BF APH/CPH |
| E26 | | F891P6Z00HAP | DOOR OPENING BUTTON | 1 | P295WF APH/CPH |
| E27 | | F82566F00AP | DOOR OPENING LEVER | 1 | P295 APH/CPH |
| E28 | | F80375950AP | COOK BUTTON SPRING | 1 | |
| E30 | | F81276F00AP | BACK PANEL | 1 | P295 APH/CPH |
| E35 | | F00076Z00SAP | NAME PLATE | 1 | P295SF APH |
| E35 | | F00076Z00BAP | NAME PLATE | 1 | P295BF APH |
| E35 | | F00076Z00HAP | NAME PLATE | 1 | P295WF APH |
| E35 | | F00076Z00SCP | NAME PLATE | 1 | P295SF CPH |
| E35 | | F00076Z00BCP | NAME PLATE | 1 | P295BF CPH |
| E35 | | F00076Z00HCP | NAME PLATE | 1 | P295WF CPH |

## 6.4.2. NN-H275 APH/CPH



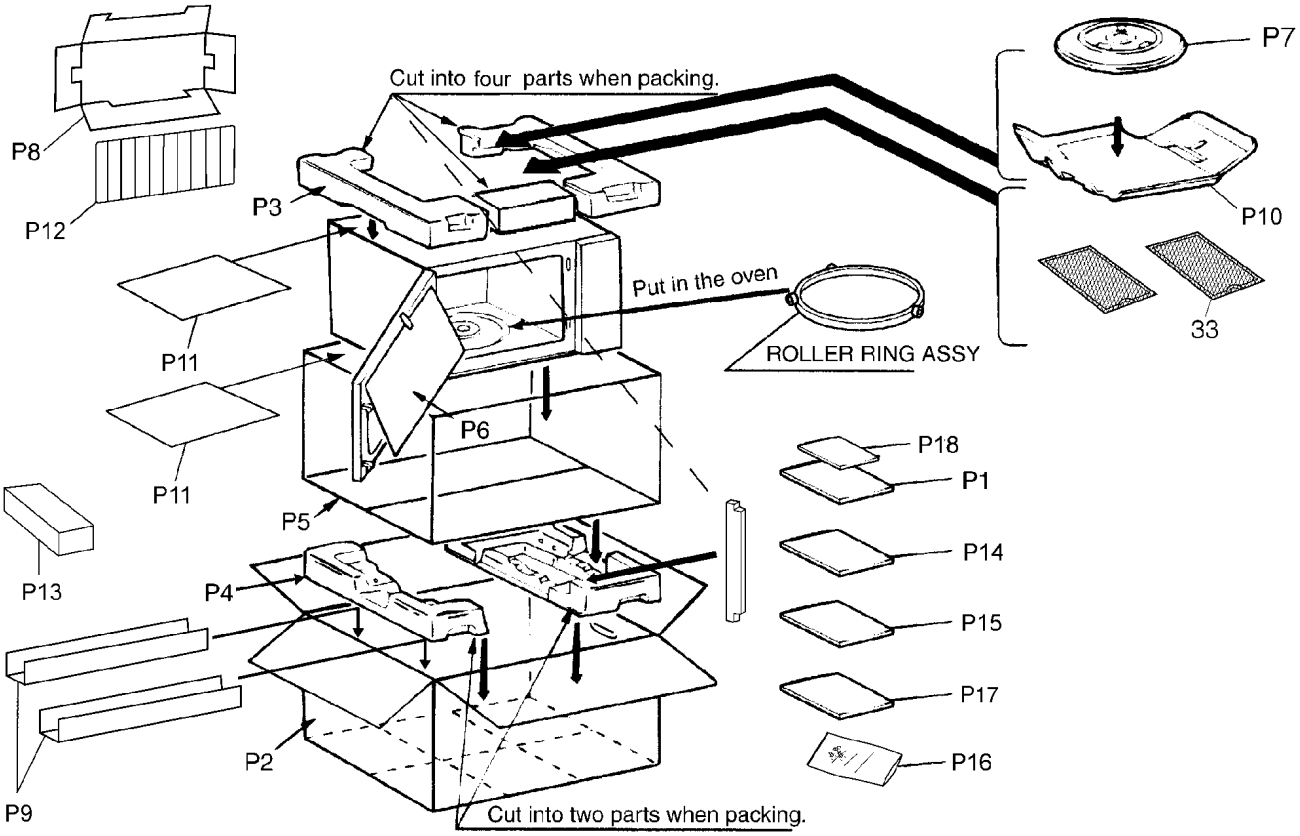

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| E41 | | F603L6Z20AP | D.P.CIRCUIT (AU) | 1 | H275SF/BF/WF/QF APH |
| E41 | | F603L6Z20CP | D.P.CIRCUIT (AU) | 1 | H275SF/BF/WF/QF CPH |
| E43 | | F800L6Z20SAP | ESCUTCHEON BASE (U) | 1 | H275SF APH |
| E43 | | F800L6Z20SCP | ESCUTCHEON BASE (U) | 1 | H275SF CPH |
| E43 | | F80346Z30BAP | ESCUTCHEON BASE | 1 | H275BF APH/CPH |
| E43 | | F80346Z30HAP | ESCUTCHEON BASE | 1 | H275WF APH/CPH |
| E43 | | F80346Z30QAP | ESCUTCHEON BASE | 1 | H275QF APH/CPH |
| E46 | | F891P6Z20SAP | DOOR OPENING BUTTON (U) | 1 | H275SF APH/CPH |
| E46 | | F80726Z30BAP | DOOR OPENING BUTTON | 1 | H275BF APH/CPH |
| E46 | | F80726Z30HAP | DOOR OPENING BUTTON | 1 | H275WF APH/CPH |
| E46 | | F80726Z30QAP | DOOR OPENING BUTTON | 1 | H275QF APH/CPH |
| E47 | | F82566F00AP | DOOR OPENING LEVER | 1 | |
| E48 | | F80375950AP | COOK BUTTON SPRING | 1 | |
| E49 | | F630Y6Z20SAP | MEMBRANE SWITCH (U) | 1 | H275SF APH |
| E49 | | F630Y6Z20SCP | MEMBRANE SWITCH (U) | 1 | H275SF CPH |
| E49 | | F630Y6Z30BAP | MEMBRANE SWITCH (U) | 1 | H275BF APH |
| E49 | | F630Y6Z30BCP | MEMBRANE SWITCH (U) | 1 | H275BF CPH |
| E49 | | F630Y6Z30HAP | MEMBRANE SWITCH (U) | 1 | H275WF APH |
| E49 | | F630Y6Z30HCP | MEMBRANE SWITCH (U) | 1 | H275WF CPH |
| E49 | | F630Y6Z30QAP | MEMBRANE SWITCH (U) | 1 | H275QF APH |
| E49 | | F630Y6Z30QCP | MEMBRANE SWITCH (U) | 1 | H275QF CPH |
| E50 | | F81276Z20AP | BACK PANEL | 1 | H275 APH/CPH |
| E51 | | F803G7Z20BAP | POP-UP DIAL (U) | 1 | H275SF APH/CPH,H275BF APH/CPH |
| E51 | | F803G7Z20HAP | POP-UP DIAL (U) | 1 | H275WF APH/CPH |
| E51 | | F803G7Z20QAP | POP-UP DIAL (U) | 1 | H275QF APH/CPH |
| E52 | | F801876Z20AP | BACKSTOP | 1 | H275 APH/CPH |
| E55 | | F00076Z20SAP | NAME PLATE | 1 | H275SF APH |
| E55 | | F00076Z30BAP | NAME PLATE | 1 | H275BF APH |
| E55 | | F00076Z30HAP | NAME PLATE | 1 | H275WF APH |
| E55 | | F00076Z30QAP | NAME PLATE | 1 | H275QF APH |
| E55 | | F00076Z20SCP | NAME PLATE | 1 | H275SF CPH |
| E55 | | F00076Z30BCP | NAME PLATE | 1 | H275BF CPH |
| E55 | | F00076Z30HCP | NAME PLATE | 1 | H275WF CPH |
| E55 | | F00076Z30QCP | NAME PLATE | 1 | H275QF CPH |

## 6.4.3. NN-S255 APH/CPH, S245 CPH, H264*FR APH, S254*FR APH




| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| E1 | | F603L6Z60AP | D.P.CIRCUIT (AU) | 1 | S255BF/WF APH |
| E1 | | F603L6Z60CP | D.P.CIRCUIT (AU) | 1 | S255BF/WF CPH |
| E1 | | F603L6Y90CP | D.P.CIRCUIT (AU) | 1 | S245BF/WF CPH |
| E1 | | F603L6Z80AP | D.P.CIRCUIT (AU) | 1 | H264*FR APH |
| E1 | | F603L6Z90AP | D.P.CIRCUIT (AU) | 1 | S254*FR APH |
| E3 | | F80346Z60BAP | ESCUTCHEON BASE | 1 | S255BF APH/CPH |
| E3 | | F80346Z60HAP | ESCUTCHEON BASE | 1 | S255WF APH/CPH |
| E3 | | F80345H00AP | ESCUTCHEON BASE | 1 | H264SFR APH,S254SFR APH |
| E3 | | F80345H10BAP | ESCUTCHEON BASE | 1 | S245BF CPH,H264BFR APH,S254BFR APH |
| E3 | | F80345H10HAP | ESCUTCHEON BASE | 1 | S245WF CPH,H264WFR APH,S254WFR APH |
| E4 | | F80025H00AP | ESCUTCHEON B | 1 | S245 CPH,H264*FR APH,S254*FR APH |
| E6 | | F80726Z30BAP | DOOR OPENING BUTTON | 1 | S255BF APH/CPH |
| E6 | | F80726Z30HAP | DOOR OPENING BUTTON | 1 | S255WF APH/CPH |
| E6 | | F80725H00AP | DOOR OPENING BUTTON | 1 | H264SFR |
| E6 | | F80725H10BAP | DOOR OPENING BUTTON | 1 | S245BF,H264BFR |
| E6 | | F80725H10HAP | DOOR OPENING BUTTON | 1 | S245WF,H264WFR |
| E7 | | F82566F00AP | DOOR OPENING LEVER | 1 | S255 APH/CPH |
| E7 | | F82565H00AP | DOOR OPENING LEVER | 1 | S245 CPH,H264*FR APH,S254*FR APH |
| E8 | | F80375950AP | COOK BUTTON SPRING | 1 | |
| E9 | | F630Y6Z60BAP | MEMBRANE SWITCH (U) | 1 | S255BF APH |
| E9 | | F630Y6Z60HAP | MEMBRANE SWITCH (U) | 1 | S255WF APH |
| E9 | | F630Y6Z60BCP | MEMBRANE SWITCH (U) | 1 | S255BF CPH |
| E9 | | F630Y6Z60HCP | MEMBRANE SWITCH (U) | 1 | S255WF CPH |
| E9 | | F630Y6F20BCP | MEMBRANE SWITCH (U) | 1 | S245BF CPH |
| E9 | | F630Y6F20HCP | MEMBRANE SWITCH (U) | 1 | S245WF CPH |
| E9 | | F630Y6F10BAP | MEMBRANE SWITCH (U) | 1 | H264SFR/BFR APH |
| E9 | | F630Y6F10HAP | MEMBRANE SWITCH (U) | 1 | H264WFR APH |
| E9 | | F630Y6F20BAP | MEMBRANE SWITCH (U) | 1 | S254SFR/BFR APH |
| E9 | | F630Y6F20HAP | MEMBRANE SWITCH (U) | 1 | S254WFR APH |
| E10 | | F81276Z60AP | BACK PLATE | 1 | S255 APH/CPH |
| E10 | | F81275H00AP | BACK PLATE | 1 | S245 CPH,H264*FR APH,S254*FR APH |
| E11 | | F00076Z60BAP | NAME PLATE | 1 | S255BF APH |
| E11 | | F00076Z60HAP | NAME PLATE | 1 | S255WF APH |
| E11 | | F00076Z60BCP | NAME PLATE | 1 | S255BF CPH |
| E11 | | F00076Z60HCP | NAME PLATE | 1 | S255WF CPH |
| E11 | | F00076Y90BCP | NAME PLATE | 1 | S245BF CPH |
| E11 | | F00076Y90HCP | NAME PLATE | 1 | S245WF CPH |
| E11 | | F00076Z80SAP | NAME PLATE | 1 | H264SFR APH |
| E11 | | F00076Z80BAP | NAME PLATE | 1 | H264BFR APH |
| E11 | | F00076Z80HAP | NAME PLATE | 1 | H264WFR APH |
| E11 | | F00076Z90SAP | NAME PLATE | 1 | S254SFR APH |
| E11 | | F00076Z90BAP | NAME PLATE | 1 | S254BFR APH |
| E11 | | F00076Z90HAP | NAME PLATE | 1 | S254WFR APH |

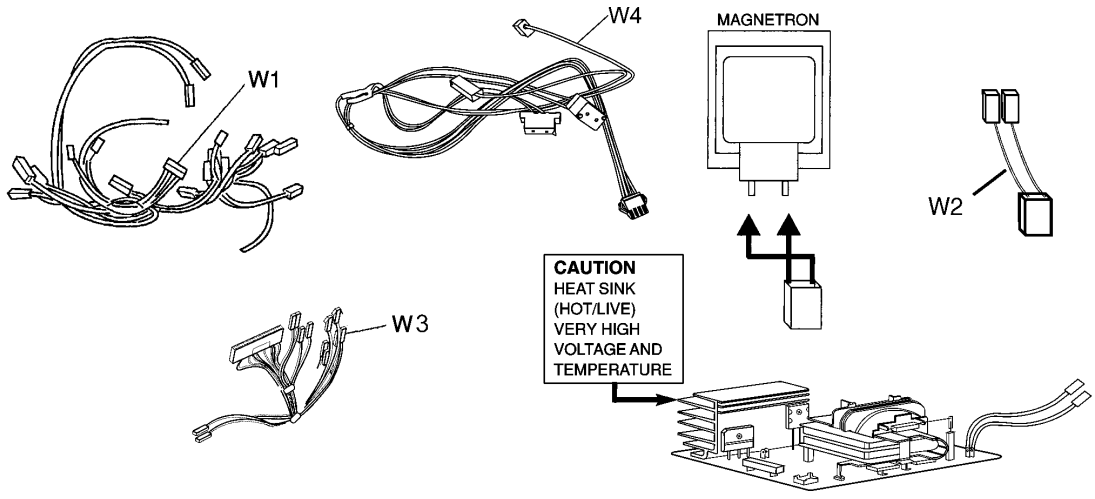
# 6.5. PACKING AND ACCESSORIES




| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| P1 | | F00036Z00AP | INSTRUCTION MANUAL | 1 | P295SF/BF/WF APH |
| P1 | | F00036Z00CP | INSTRUCTION MANUAL | 1 | P295SF/BF/WF CPH |
| P1 | | F00036Z20AP | INSTRUCTION MANUAL | 1 | H275SF/BF/WF/QF APH |
| P1 | | F00036Z20CP | INSTRUCTION MANUAL | 1 | H275SF/BF/WF/QF CPH |
| P1 | | F00036Z60AP | INSTRUCTION MANUAL | 1 | S255BF/WF APH |
| P1 | | F00036Z60CP | INSTRUCTION MANUAL | 1 | S255BF/WF CPH |
| P1 | | F00036Y90CP | INSTRUCTION MANUAL | 1 | S245BF/WF CPH |
| P1 | | F00036Z80AP | INSTRUCTION MANUAL | 1 | H264SFR/BFR/WFR APH,S254SFR/BFR/WFR APH |
| P2 | | F01026Z00SAP | PACKING CASE,PAPER | 1 | P295SF APH |
| P2 | | F01026Z00BAP | PACKING CASE,PAPER | 1 | P295BF APH |
| P2 | | F01026Z00HAP | PACKING CASE,PAPER | 1 | P295WF APH |
| P2 | | F01026Z00SCP | PACKING CASE,PAPER | 1 | P295SF CPH |
| P2 | | F01026Z00BCP | PACKING CASE,PAPER | 1 | P295BF CPH |
| P2 | | F01026Z00HCP | PACKING CASE,PAPER | 1 | P295WF CPH |
| P2 | | F01026Z20SAP | PACKING CASE,PAPER | 1 | H275SF APH |
| P2 | | F01026Z30BAP | PACKING CASE,PAPER | 1 | H275BF APH |
| P2 | | F01026Z30HAP | PACKING CASE,PAPER | 1 | H275WF APH |
| P2 | | F01026Z30QAP | PACKING CASE,PAPER | 1 | H275QF APH |
| P2 | | F01026Z20SCP | PACKING CASE,PAPER | 1 | H275SF CPH |
| P2 | | F01026Z30BCP | PACKING CASE,PAPER | 1 | H275BF CPH |
| P2 | | F01026Z30HCP | PACKING CASE,PAPER | 1 | H275WF CPH |
| P2 | | F01026Z30QCP | PACKING CASE,PAPER | 1 | H275QF CPH |
| P2 | | F01026Z60BAP | PACKING CASE,PAPER | 1 | S255BF APH |
| P2 | | F01026Z60HAP | PACKING CASE,PAPER | 1 | S255WF APH |
| P2 | | F01026Z60BCP | PACKING CASE,PAPER | 1 | S255BF CPH |
| P2 | | F01026Z60HCP | PACKING CASE,PAPER | 1 | S255WF CPH |
| P2 | | F01026Y90BCP | PACKING CASE,PAPER | 1 | S245BF CPH |
| P2 | | F01026Y90HCP | PACKING CASE,PAPER | 1 | S245WF CPH |
| P2 | | F01026Z80SAP | PACKING CASE,PAPER | 1 | H264SFR APH |
| P2 | | F01026Z80BAP | PACKING CASE,PAPER | 1 | H264BFR APH |
| P2 | | F01026Z80HAP | PACKING CASE,PAPER | 1 | H264WFR APH |
| P2 | | F01026Z90SAP | PACKING CASE,PAPER | 1 | S254SFR APH |
| P2 | | F01026Z90BAP | PACKING CASE,PAPER | 1 | S254BFR APH |
| P2 | | F01026Z90HAP | PACKING CASE,PAPER | 1 | S254WFR APH |
| P3 | | F01045H00AP | UPPER FILLER | 1 | P295 APH/CPH,S245 CPH,H264*FR APH,S254*FR APH |

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| P3 | | F01046Z20AP | UPPER FILLER | 1 | H275 APH/CPH,S255 APH/CPH |
| P4 | | F01055H00AP | LOWER FILLER | 1 | P295 APH/CPH,S245 CPH,H264*FR APH,S254*FR APH |
| P4 | | F01056Z20AP | LOWER FILLER | 1 | H275 APH/CPH,S255 APH/CPH |
| P5 | | F01065H00AP | P.E.BAG | 1 | |
| P6 | | F01075H00AP | DOOR SHEET | 1 | |
| P7 | | A06015H00AP | COOKING TRAY | 1 | |
| P8 | | F01175H00AP | TRAY PACKING B | 1 | |
| P9 | | F01485H00AP | REINFORCE BRACKET | 2 | |
| P10 | | F01085H00AP | TRAY PACKING | 1 | |
| P11 | | F01925H00AP | SHEET | 2 | |
| P12 | | F06025H00AP | OVEN RACK | 1 | EXCEPT S255BF/WF APH |
| P13 | | F02185H00AP | PROTECTOR PACKING | 1 | |
| P14 | | F03136Z00AP | INSTALLATION INSTRUCTION | 1 | APH |
| P14 | | F03136Z00CP | INSTALLATION INSTRUCTION | 1 | CPH |
| P15 | | F04316Z00AP | UPPER-CABINET TEMPLATE | 1 | APH |
| P15 | | F04316Z00CP | UPPER-CABINET TEMPLATE | 1 | CPH |
| | | | | | |
| P16 | | F011F6Z00AP | ATTACHMENT | 1 | |
| P17 | | F04845V10AP | FILTER PURCHASE NOTICE | 1 | APH |
| P18 | | F04456Z00SCP | OVERLAY | 1 | P295SF CPH |
| P18 | | F04456Z00BCP | OVERLAY | 1 | P295BF CPH |
| P18 | | F04456Z00HCP | OVERLAY | 1 | P295WF CPH |
| P18 | | F04456Z20SCP | OVERLAY | 1 | H275SF CPH |
| P18 | | F04456Z30BCP | OVERLAY | 1 | H275BF CPH |
| P18 | | F04456Z30HCP | OVERLAY | 1 | H275WF CPH |
| P18 | | F04456Z30QCP | OVERLAY | 1 | H275QF CPH |
| P18 | | F04456Z60BCP | OVERLAY | 1 | S255BF CPH |
| P18 | | F04456Z60HCP | OVERLAY | 1 | S255WF CPH |
| P18 | | F04456F20BCP | OVERLAY | 1 | S245BF CPH |
| P18 | | F04456F20HCP | OVERLAY | 1 | S245WF CPH |
| P19 | | F011G6Z00AP | ATTACHMENT B | 1 | |
| 33 | | F400B6Z00AP | FILTER (U) | 2 | |

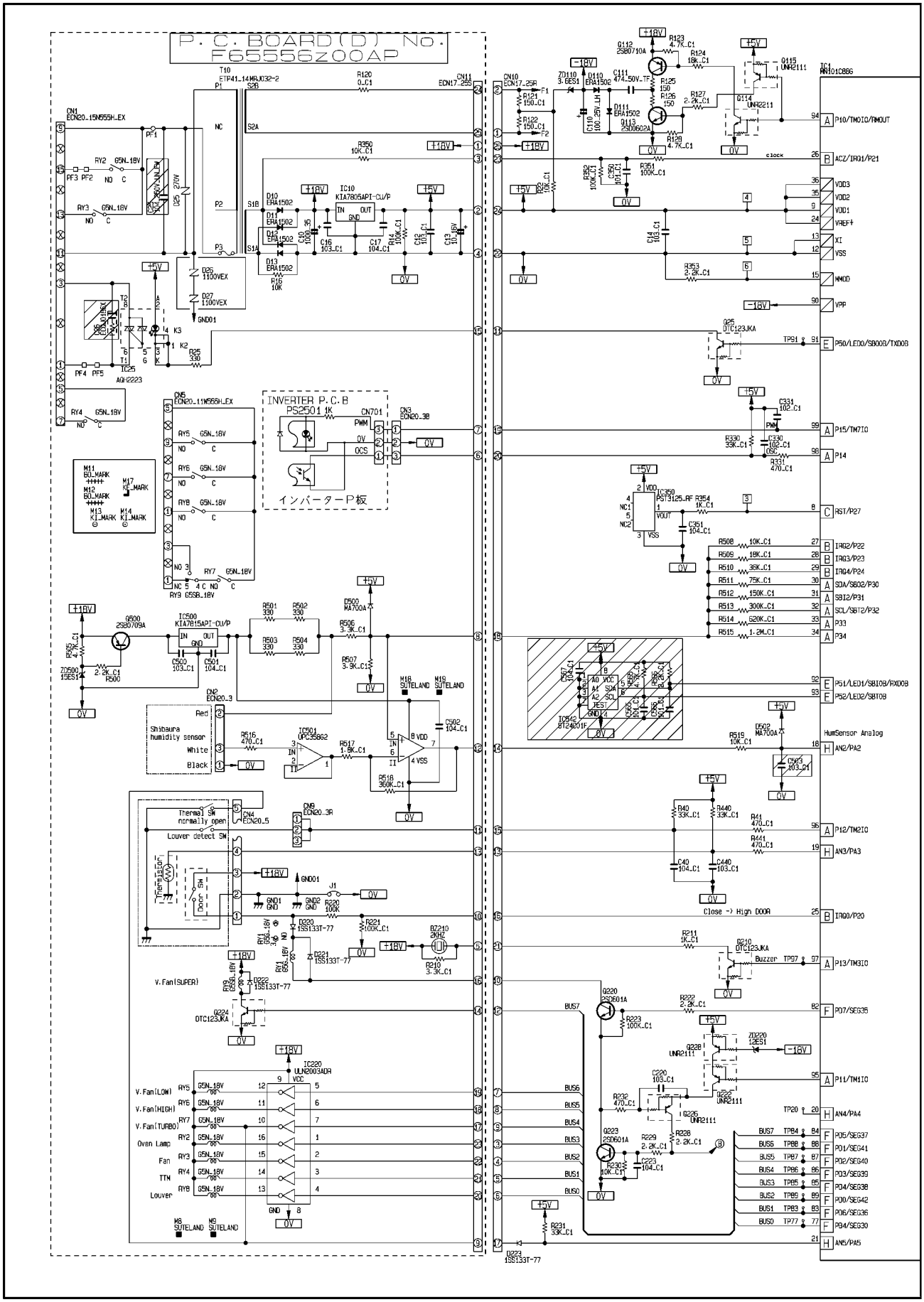
## 6.6. WIRING MATERIALS

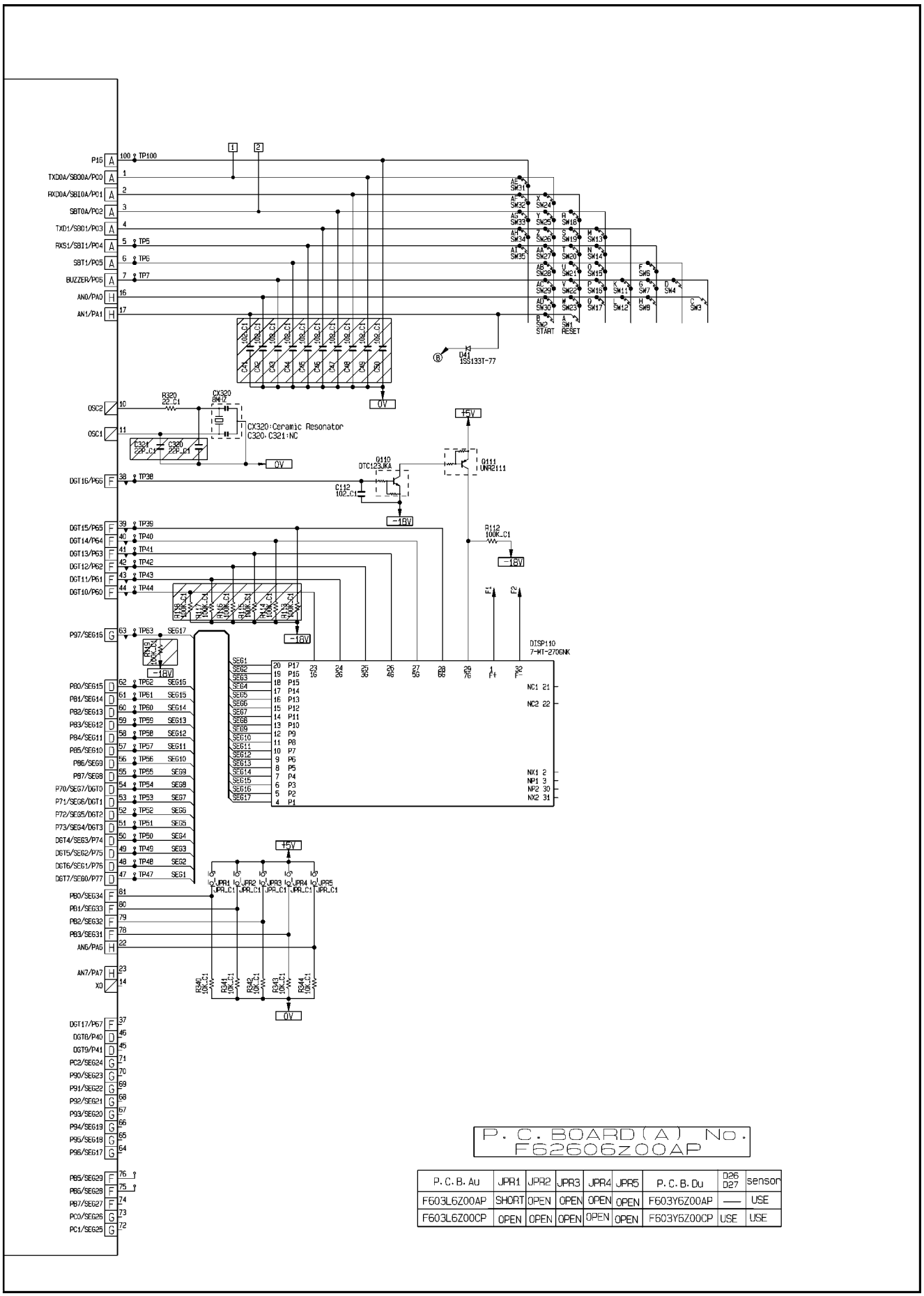



| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| W1 | | F030A6Z00AP | LEAD WIRE HARNESS | 1 | P295SF/BF/WF APH |
| W1 | | F030A6Z00CP | LEAD WIRE HARNESS | 1 | P295SF/BF/WF CPH |
| W1 | | F030A6Z20AP | LEAD WIRE HARNESS | 1 | H275SF/BF/WF/QF APH |
| W1 | | F030A6Z20CP | LEAD WIRE HARNESS | 1 | H275SF/BF/WF/QF CPH |
| W1 | | F030A6Z60AP | LEAD WIRE HARNESS | 1 | S255BF/WF APH |
| W1 | | F030A6Z60CP | LEAD WIRE HARNESS | 1 | S255BF/WF CPH |
| W1 | | F030A6Y90CP | LEAD WIRE HARNESS | 1 | S245BF/WF CPH |
| W1 | | F030A6Z80AP | LEAD WIRE HARNESS | 1 | H264*FR APH,S254*FR APH |
| W2 | | F030E5H00AP | H.V.LEAD WIRE | 1 | APH |
| W2 | | F030E5H00CP | H.V.LEAD WIRE | 1 | CPH |
| W3 | | F03536F00AP | LEAD WIRE HARNESS U | 1 | (INCLUDING CABEL CONNECTOR CN4) |
| W4 | | F03556Z00AP | LEAD WIRE HARNESS | 1 | P295 APH/CPH (INCLUDING SOCKET) |

# 7 DIGITAL PROGRAMMER CIRCUIT

## 7.1. NN-P295 APH/CPH

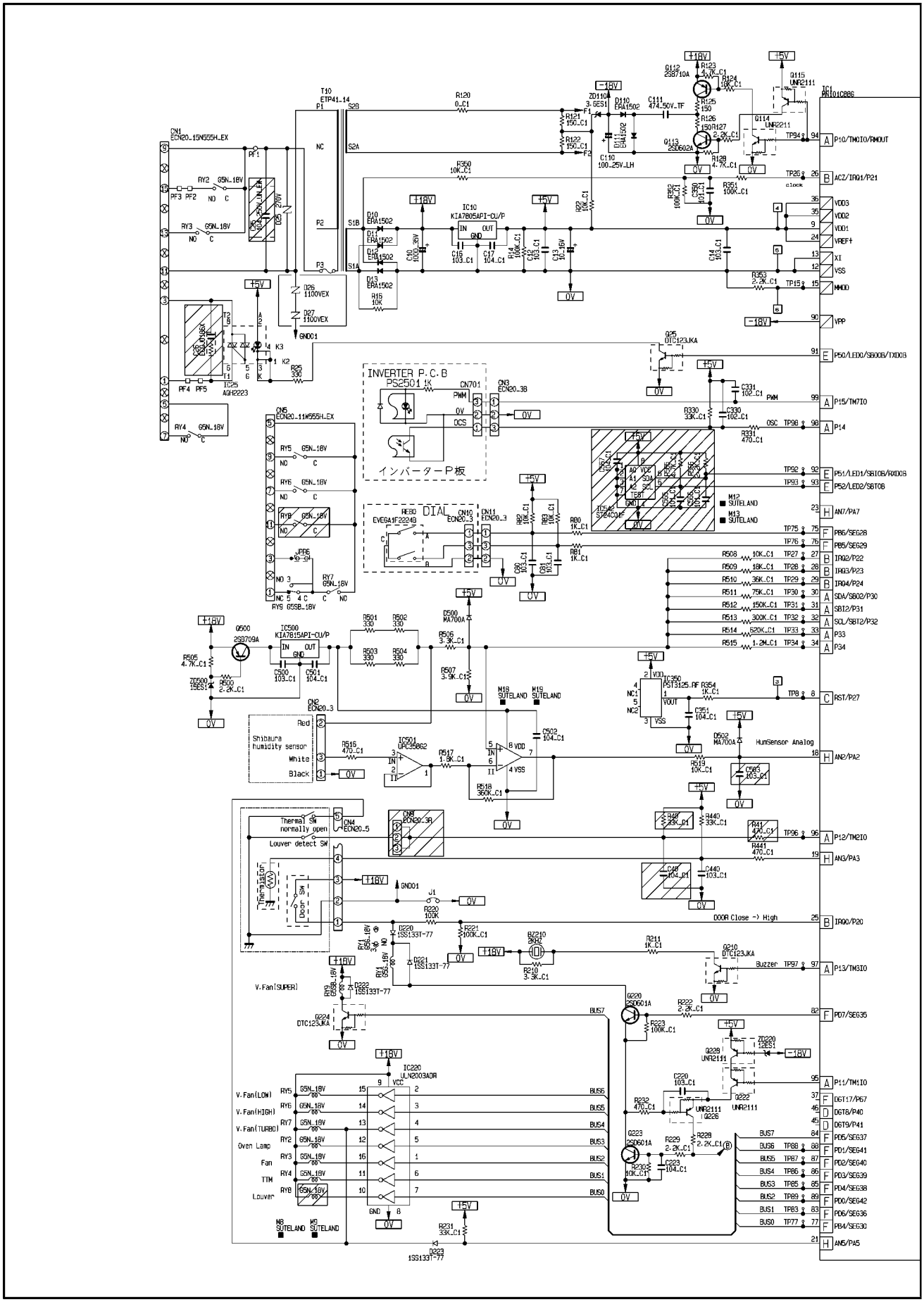


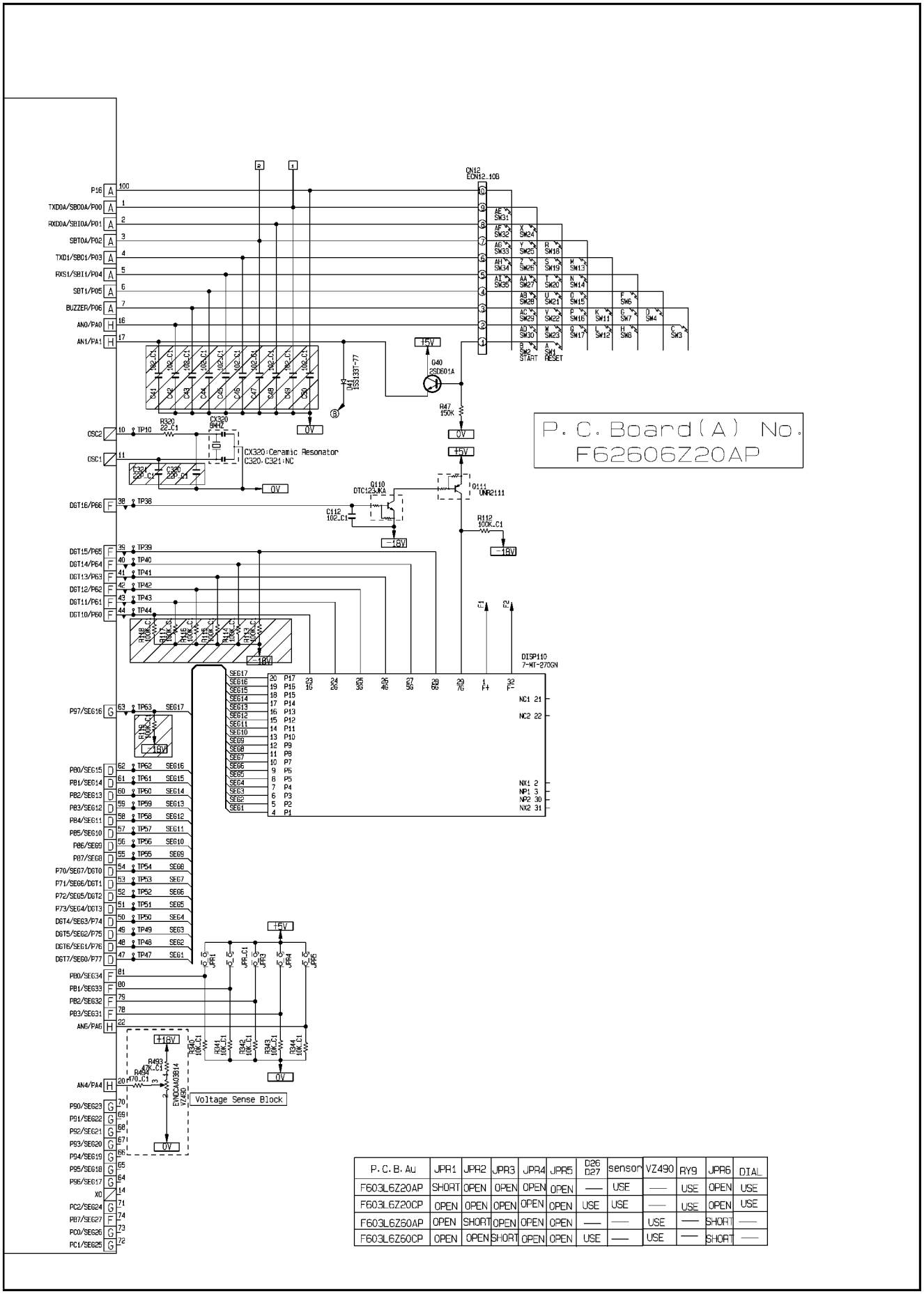



P. C. BOARD ( A ) No.
F626062Z00AP

| P. C. B. Au | JPR1 | JPR2 | JPR3 | JPR4 | JPR5 | P. C. B. Du | D26 D27 | sensor |
|---|---|---|---|---|---|---|---|---|
| F603L6Z00AP | SHORT | OPEN | OPEN | OPEN | OPEN | F603Y6Z00AP | —— | USE |
| F603L6Z00CP | OPEN | OPEN | OPEN | OPEN | OPEN | F603Y6Z00CP | USE | USE |

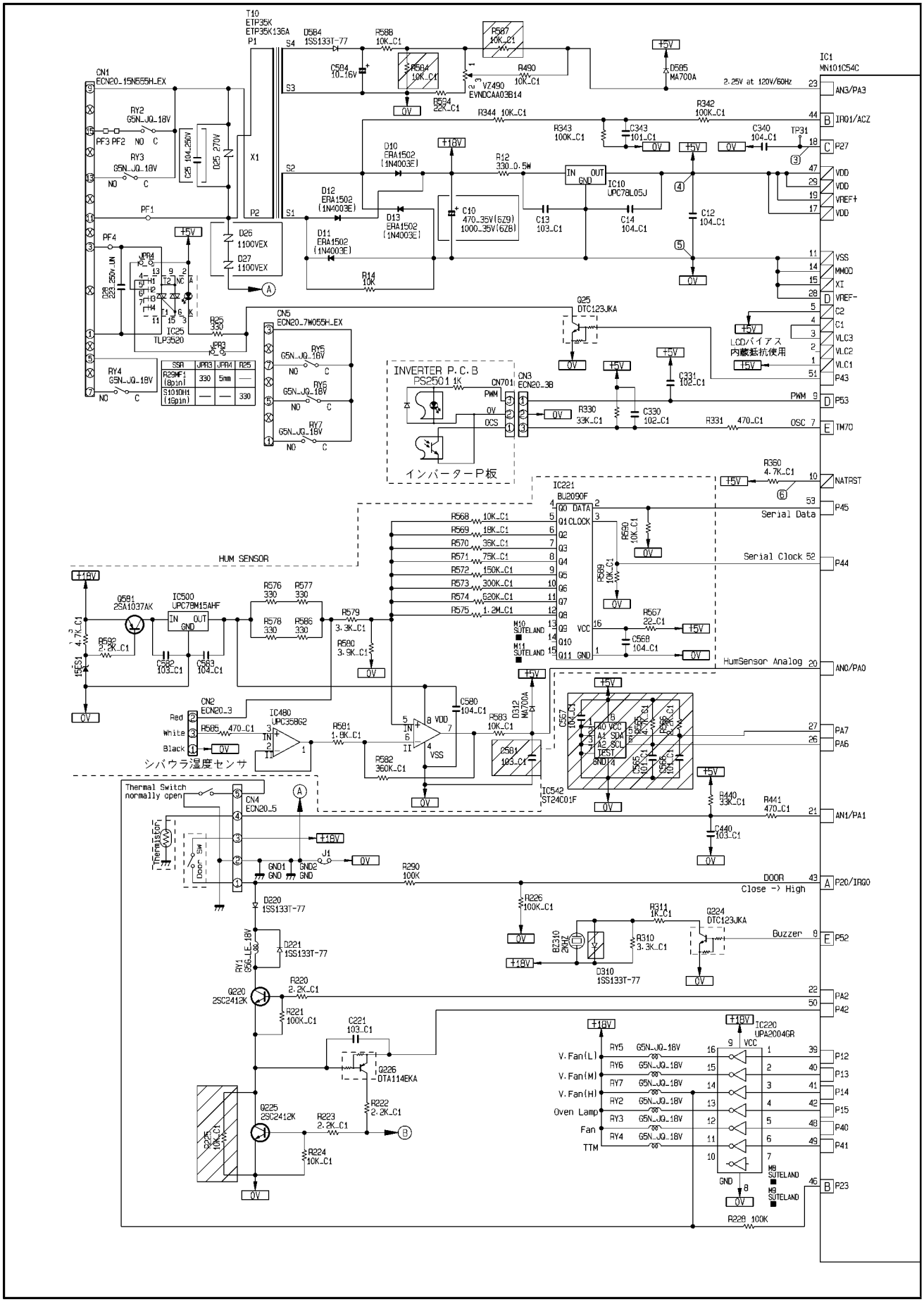
# 7.2. NN-H275 APH/CPH, NN-S255 APH/CPH

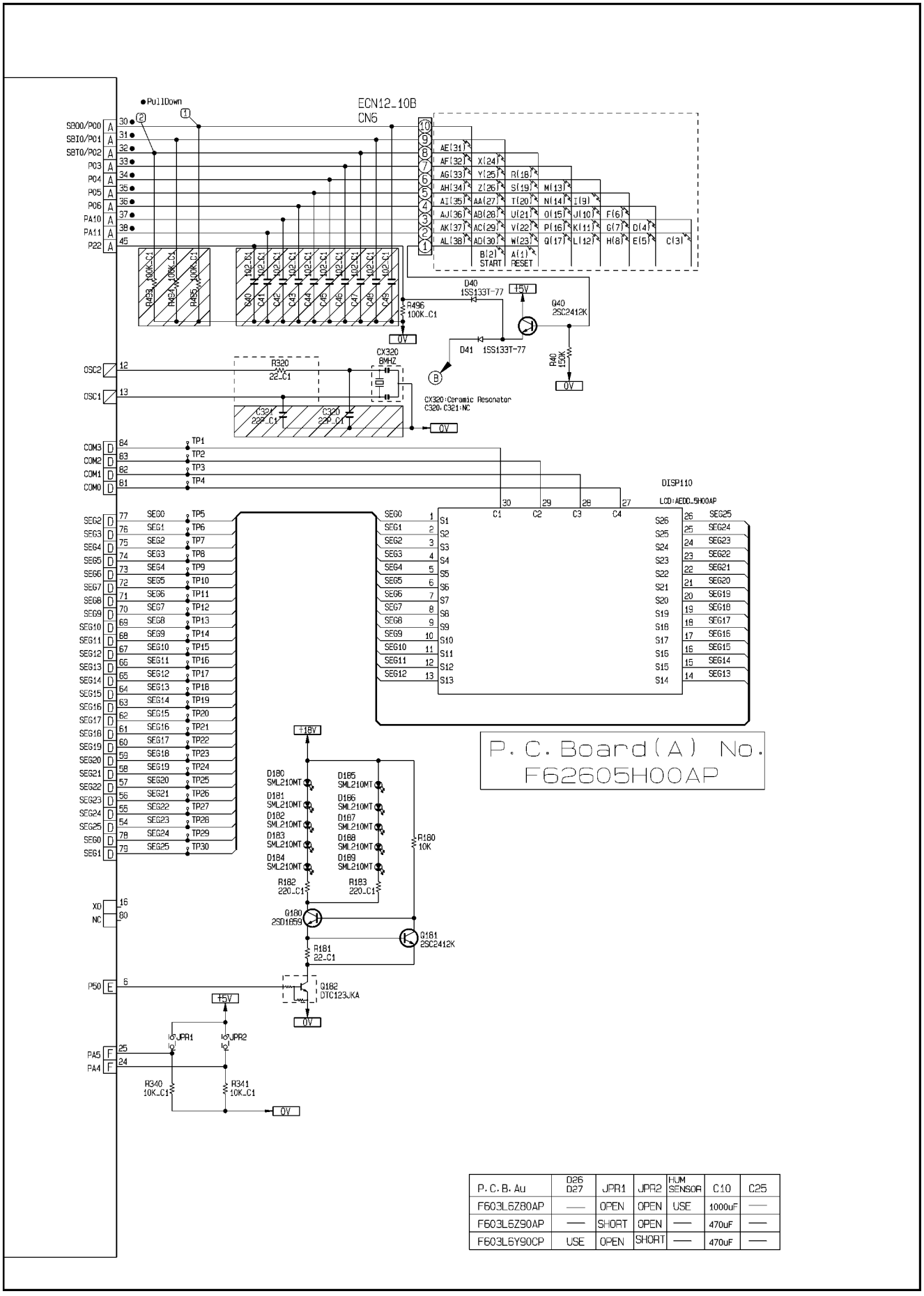





| P.C.B. Au | JPR1 | JPR2 | JPR3 | JPR4 | JPR5 | D26 D27 | sensor | VZ490 | RY9 | JPR6 | DIAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| F603L6Z20AP | SHORT | OPEN | OPEN | OPEN | OPEN | — | USE | — | USE | OPEN | USE |
| F603L6Z20CP | OPEN | OPEN | OPEN | OPEN | OPEN | USE | USE | — | USE | OPEN | USE |
| F603L6Z60AP | OPEN | SHORT | OPEN | OPEN | OPEN | — | — | USE | — | SHORT | — |
| F603L6Z60CP | OPEN | OPEN | SHORT | OPEN | OPEN | USE | — | USE | — | SHORT | — |

# 7.3. NN-S245 CPH, H264*FR APH, S254*FR APH






| P.C.B.Au | D26 D27 | JPR1 | JPR2 | HUM SENSOR | C10 | C25 |
|---|---|---|---|---|---|---|
| F603L6Z80AP | — | OPEN | OPEN | USE | 1000uF | — |
| F603L6Z90AP | — | SHORT | OPEN | — | 470uF | — |
| F603L6Y90CP | USE | OPEN | SHORT | — | 470uF | — |

# 7.4. PARTS LIST

## 7.4.1. NN-P295 APH/CPH, S255 APH/CPH

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| BZ210 | | AEFBAT2001WQ | BUZZER | 1 | 2.0KHz |
| C111 | | ECQV1H474JL2 | METAL FILM CAPACITOR | 1 | 0.47µF/50V |
| C350 | | F1H1H101A894 | CHIP CAPACITOR | 1 | 100PF/50V |
| C112,C330,C331 | | F1H1H102A896 | CHIP CAPACITOR | 3 | 1000PF/50V |
| C12,C14,C16,C220,C440 | | F1H1H103A897 | CHIP CAPACITOR | 5 | 0.01µF/50V |
| C500 | | F1H1H103A897 | CHIP CAPACITOR | 1 | 0.01µF/50V (P295 APH/CPH) |
| C17,C40,C223,C351 | | F1H1E104A108 | CHIP CAPACITOR | 4 | 0.1µF/25V |
| C501,C502 | | F1H1E104A108 | CHIP CAPACITOR | 2 | 0.1µF/25V (P295 APH/CPH) |
| C10 | | AECETK1V102B | AL CHEM CAPACITOR | 1 | 1000µF/35V |
| C13 | | AECETS1C220B | AL CHEM CAPACITOR | 1 | 22µF/16V |
| C110 | | ECEA1EKS101I | AL CHEM CAPACITOR | 1 | 100µF/25V |
| CN1 | | K1KA08AA0115 | CONNECTOR | 1 | 15Pin |
| CN2 | | K1KA03AA0086 | CONNECTOR | 1 | 3Pin (P295 APH/CPH) |
| CN3 | | K1KA03AA0090 | CONNECTOR | 1 | 3Pin |
| CN4 | | K1KA05AA0086 | CONNECTOR | 1 | 5Pin |
| CN5 | | K1KA06AA0122 | CONNECTOR | 1 | 11Pin |
| CN9 | | K1KA03AA0087 | CONNECTOR | 1 | 3Pin (P295 APH/CPH) |
| CN10 | | K1MN25B00046 | CONNECTOR | 1 | 25Pin (P295 APH/CPH) |
| CN11 | | K1MN25A00014 | CONNECTOR | 1 | 25Pin (P295 APH/CPH) |
| CN12 | | K1MN10AA0040 | CONNECTOR | 1 | 10Pin (S255 APH/CPH) |
| CX320 | | EFOEC8004A4 | CERAMIC RESONATOR | 1 | 8MHz |
| IC1 | | MN101C88GDA | L.S.I. | 1 | |
| IC10 | | C0CAADG00060 | IC | 1 | |
| IC25 | | B3PAC0000060 | IC | 1 | |
| IC220 | | B1HBGFF00007 | IC | 1 | |
| IC350 | | C0EBH0000264 | IC | 1 | |
| IC500 | | C0CAALG00023 | IC | 1 | (P295 APH/CPH) |
| IC501 | | C0AABA000051 | IC | 1 | (P295 APH/CPH) |
| | | A2BB00000150 | DISPLAY | 1 | |
| | | F66176Z00AP | DISPLAY HOLDER | 1 | |
| Q220,Q223 | | 2SD0601A0L | CHIP TRANSISTOR | 2 | |
| Q40 | | 2SD0601A0L | CHIP TRANSISTOR | 1 | (S255 APH/CPH) |
| Q113 | | 2SD0602ARL | CHIP TRANSISTOR | 1 | |
| Q500 | | 2SB0709A0L | CHIP TRANSISTOR | 1 | (P295 APH/CPH) |
| Q112 | | 2SB0710ARL | CHIP TRANSISTOR | 1 | |
| Q25,Q110,Q210 | | B1GBCFEL0002 | CHIP DIGI-TRANSISTOR | 3 | |
| Q224 | | B1GBCFEL0002 | CHIP DIGI-TRANSISTOR | 1 | (P295 APH/CPH) |
| Q111,Q115,Q222,Q226,Q228 | | UNR211100L | CHIP DIGI-TRANSISTOR | 5 | |
| Q114 | | UNR221100L | CHIP DIGI-TRANSISTOR | 1 | |
| D41,D220,D221,D223 | | B0AACK000004 | DIODE | 4 | |
| D222 | | B0AACK000004 | DIODE | 1 | (P295 APH/CPH) |
| D10-D13,D110,D111 | | AESSRCT1A6-E | DIODE | 6 | |
| D500,D502 | | AEDNRB721Q | DIODE | 2 | (P295 APH/CPH) |
| D25 | | AERZ271KSBN | VARISTOR | 1 | 270V |
| D26,D27 | | AERZ102KSBN | VARISTOR | 2 | 1000V (CPH) |
| R16 | | D0AE103JA097 | CARBON FILM RESISTOR | 1 | 10KΩ,1/4W,5% |
| R220 | | D0AE104J0001 | CARBON FILM RESISTOR | 1 | 100KΩ,1/4W,5% |
| R47 | | AERDY2TJ154T | CARBON FILM RESISTOR | 1 | 150KΩ,1/4W,5% (S255 APH/CPH) |
| R25 | | D0AE331J0001 | CARBON FILM RESISTOR | 1 | 330Ω,1/4W,5% |
| R125,R126 | | D0AE151J0002 | CARBON FILM RESISTOR | 2 | 150Ω,1/4W,5% |
| R501-R504 | | D1AC3300A063 | METAL FILM RESISTOR | 4 | 330Ω,1/4W,1% (P295 APH/CPH) |
| ZD110 | | B0BA3R500006 | ZENER DIODE | 1 | |
| ZD220 | | AESZMTZJ120B | ZENER DIODE | 1 | |
| ZD500 | | B0BA01400009 | ZENER DIODE | 1 | (P295 APH/CPH) |
| RY1 | | K6B1AZA00005 | POWER RELAY | 1 | 18V |
| RY2-RY7 | | K6B1AZA00011 | POWER RELAY | 6 | |
| RY8 | | K6B1AZA00011 | POWER RELAY | 1 | (P295 APH/CPH) |
| RY9 | | K6B1CZA00004 | POWER RELAY | 1 | (P295 APH/CPH) |
| T10 | | G4C4AAD00006 | LOW VOLTAGE TRANSFORMER | 1 | 120V |
| SW1-SW4,SW6-SW8,SW11-SW35 | | EUQ11L05R | SWITCH | 32 | (P295 APH/CPH) |
| VZ490 | | D3BB6103A006 | VARISTOR | 1 | 10KΩ VR (S255 APH/CPH) |

## 7.4.2. NN-H275 APH/CPH

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| BZ210 | | AEFBAT2001WQ | BUZZER | 1 | 2.0KHz |
| C111 | | ECQV1H474JL2 | METAL FILM CAPACITOR | 1 | 0.47µF/50V |
| C350 | | F1H1H101A894 | CHIP CAPACITOR | 1 | 100PF/50V |
| C112,C330,C331 | | F1H1H102A896 | CHIP CAPACITOR | 3 | 1000PF/50V |
| C12,C14,C16,C80,C81,C220, C440,C500 | | F1H1H103A897 | CHIP CAPACITOR | 8 | 0.01µF/50V |
| C17,C40,C223,C351,C501,C502 | | F1H1E104A108 | CHIP CAPACITOR | 6 | 0.1µF/25V |
| C15 | | AECUU08F474Z | CHIP CAPACITOR | 1 | 0.47µF/50V (CPH) |
| C10 | | AECETK1V102B | AL CHEM CAPACITOR | 1 | 1000µF/35V |
| C13 | | AECETS1C220B | AL CHEM CAPACITOR | 1 | 22µF/16V |
| C110 | | ECEA1EKS101I | AL CHEM CAPACITOR | 1 | 100µF/25V |
| CN1 | | K1KA08AA0115 | CONNECTOR | 1 | 15Pin |
| CN2,CN11 | | K1KA03AA0086 | CONNECTOR | 2 | 3Pin |
| CN3 | | K1KA03AA0090 | CONNECTOR | 1 | 3Pin |
| CN4 | | K1KA05AA0086 | CONNECTOR | 1 | 5Pin |
| CN5 | | K1KA06AA0122 | CONNECTOR | 1 | 11Pin |
| CN10 | | F03525E30XN | INV.HARNESS | 1 | |
| CN12 | | K1MN10AA0040 | CONNECTOR | 1 | 10Pin |
| CX320 | | EFOEC8004A4 | CERAMIC RESONATOR | 1 | 8MHz |
| IC1 | | MN101C88GDB1 | L.S.I. | 1 | |
| IC10 | | C0CAADG00060 | IC | 1 | |
| IC25 | | B3PAC0000060 | IC | 1 | |
| IC220 | | B1HBGFF00007 | IC | 1 | |
| IC350 | | C0EBH0000264 | IC | 1 | |
| IC500 | | C0CAALG00023 | IC | 1 | |
| IC501 | | C0AABA000051 | IC | 1 | |
| DISP110 | | A2BB00000150 | DISPLAY | 1 | |
| | | F66176Z00AP | DISPLAY HOLDER | 1 | |
| Q40,Q220,Q223 | | 2SD0601A0L | CHIP TRANSISTOR | 3 | |
| Q113 | | 2SD0602ARL | CHIP TRANSISTOR | 1 | |
| Q112 | | 2SB0710ARL | CHIP TRANSISTOR | 1 | |
| Q500 | | 2SB0709A0L | CHIP TRANSISTOR | 1 | |
| Q25,Q110,Q210,Q224 | | B1GBCFEL0002 | CHIP DIGI-TRANSISTOR | 4 | |
| Q111,Q115,Q222,Q226,Q228 | | UNR211100L | CHIP DIGI-TRANSISTOR | 5 | |
| Q114 | | UNR221100L | CHIP DIGI-TRANSISTOR | 1 | |
| D41,D220-D223 | | B0AACK000004 | DIODE | 5 | |
| D10-D13,D110,D111 | | AESSRCT1A6-E | DIODE | 6 | |
| D500,D502 | | AEDNRB721Q | DIODE | 2 | |
| D25 | | AERZ271KSBN | VARISTOR | 1 | 270V |
| D26,D27 | | AERZ102KSBN | VARISTOR | 2 | 1000V (CPH) |
| R120 | | AERJ06JR00R | CHIP RESISTOR | 1 | 0Ω,1/10W,5% |
| R80,R81,R211,R354 | | AERJ06J102R | CHIP RESISTOR | 4 | 1KΩ,1/10W,5% |
| R22,R82,R83,R230,R340-R344, R350,R508,R519 | | AERJ06J103R | CHIP RESISTOR | 12 | 10KΩ,1/10W,5% |
| R14,R112-R119,R221,R223, R351,R352 | | AERJ06J104R | CHIP RESISTOR | 13 | 100Ω,1/10W,5% |
| R515 | | AERJ06J125R | CHIP RESISTOR | 1 | 1.2MΩ,1/10W,5% |
| R121,R122 | | AERJ06J151R | CHIP RESISTOR | 2 | 150Ω,1/10W,5% |
| R124,R509 | | AERJ06J183R | CHIP RESISTOR | 2 | 18KΩ,1/10W,5% |
| R320 | | AERJ06J220R | CHIP RESISTOR | 1 | 22Ω,1/10W,5% |
| R127,R222,R228,R229,R353,R500 | | AERJ06J222R | CHIP RESISTOR | 6 | 2.2KΩ,1/10W,5% |
| R513 | | AERJ06J304R | CHIP RESISTOR | 1 | 300KΩ,1/10W,5% |
| R210,R506 | | AERJ06J332R | CHIP RESISTOR | 2 | 3.3KΩ,1/10W,5% |
| R231,R330,R440 | | AERJ06J333R | CHIP RESISTOR | 3 | 33KΩ,1/10W,5% |
| R510 | | AERJ06J363R | CHIP RESISTOR | 1 | 36KΩ,1/10W,5% |
| R232,R331,R441,R516 | | AERJ06J471R | CHIP RESISTOR | 4 | 470Ω,1/10W,5% |
| R123,R128,R505 | | AERJ06J472R | CHIP RESISTOR | 3 | 4.7KΩ,1/10W,5% |
| R16 | | D0AE103JA097 | CARBON FILM RESISTOR | 1 | 10KΩ,1/4W,5% |
| R220 | | D0AE104J0001 | CARBON FILM RESISTOR | 1 | 100KΩ,1/4W,5% |
| R47 | | AERDY2TJ154T | CARBON FILM RESISTOR | 1 | 150KΩ,1/4W,5% |
| R25 | | D0AE331J0001 | CARBON FILM RESISTOR | 1 | 330Ω,1/4W,5% |
| R125,R126 | | D0AE151J0002 | CARBON FILM RESISTOR | 2 | 150Ω,1/4W,5% |
| R501-R504 | | D1AC3300A063 | METAL FILM RESISTOR | 4 | 330Ω,1/4W,1% |
| ZD110 | | B0BA3R500006 | ZENER DIODE | 1 | |
| ZD220 | | AESZMTZJ120B | ZENER DIODE | 1 | |
| ZD500 | | B0BA01400009 | ZENER DIODE | 1 | 15VB |
| RY1 | | K6B1AZA00005 | POWER RELAY | 1 | 18V |
| RY2-RY7 | | K6B1AZA00011 | POWER RELAY | 6 | |
| RY9 | | K6B1CZA00004 | POWER RELAY | 1 | |
| T10 | | G4C4AAD00006 | LOW VOLTAGE TRANSFORMER | 1 | 120V |
| RE80 | | EVEJ1HF2224B | REVOLVING ENCODER | 1 | |

## 7.4.3. NN-S245 CPH, H264*FR APH, S254*FR APH

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| BZ310 | | AEFBAT2001WQ | BUZZER | 1 | 2.0KHz |
| C343 | | F1H1H101A894 | CHIP CAPACITOR | 1 | 100PF/50V |
| C330,C331 | | F1H1H102A896 | CHIP CAPACITOR | 2 | 1000PF/50V |
| C13,C221,C440 | | F1H1H103A897 | CHIP CAPACITOR | 3 | 0.01µF/50V |
| C582 | | F1H1H103A897 | CHIP CAPACITOR | 1 | 0.01µF/50V(H264*R APH) |
| C12,C14,C340 | | F1H1E104A108 | CHIP CAPACITOR | 3 | 0.1µF/25V |
| C568,C580,C583 | | F1H1E104A108 | CHIP CAPACITOR | 3 | 0.1µF/25V(H264*R APH) |
| C10 | | AECETK1V471B | AL CHEM CAPACITOR | 1 | 470µF/35V (S245 CPH,S254*FR APH) |
| C10 | | AECETK102B | AL CHEM CAPACITOR | 1 | 1000µF/35V (H264*R APH) |
| C584 | | AECETS1C100B | AL CHEM CAPACITOR | 1 | 10µF/16V |
| CN1 | | K1KA08AA0115 | CONNECTOR | 1 | 15Pin |
| CN2 | | K1KA03AA0086 | CONNECTOR | 1 | 3Pin (H264*R APH) |
| CN3 | | K1KA03AA0090 | CONNECTOR | 1 | 3Pin |
| CN4 | | K1KA05AA0086 | CONNECTOR | 1 | 5Pin |
| CN5 | | K1KA04AA0108 | CONNECTOR | 1 | 7Pin |
| CN6 | | K1MN10AA0040 | CONNECTOR | 1 | 10Pin |
| CX320 | | EFOEC8004A4 | CERAMIC RESONATOR | 1 | 8MHz |
| IC1 | | MN101C54CGC | L.S.I | 1 | |
| IC10 | | AEIC78L05J-T | IC | 1 | |
| IC25 | | AEICR29MF1 | IC | 1 | |
| IC220 | | B1HBGFF00007 | IC | 1 | |
| IC221 | | AEICBU2090F | IC | 1 | (H264*R APH) |
| IC480 | | C0AABA000051 | IC | 1 | (H264*R APH) |
| IC500 | | AEIC78M15AHF | IC | 1 | (H264*R APH) |
| DISP110 | | AEDDHJ5H00AP | LCD | 1 | |
| | | F66175E40XN | DISPLAY HOLDER | 1 | |
| | | F67525E40XN | DIFFUSION SHEET | 1 | |
| Q180 | | B1BAAJ000003 | TRANSISTOR | 1 | |
| Q40,Q181,Q220,Q225 | | B1ABCF000010 | CHIP TRANSISTOR | 4 | |
| Q581 | | B1ADCF000003 | CHIP TRANSISTOR | 1 | (H264*R APH) |
| Q25,Q182,Q224 | | B1GBCFEL0002 | CHIP DIGI-TRANSISTOR | 3 | |
| Q226 | | B1GDCFJJ0002 | CHIP DIGI-TRANSISTOR | 1 | |
| D180-D189 | | AESQPY1112H | CHIP-LED | 10 | |
| D40,D41,D220,D221,D584 | | B0AACK000004 | DIODE | 5 | |
| D10-D13 | | AESSRCT1A6-E | DIODE | 4 | |
| D585 | | AEDNRB721Q | DIODE | 1 | |
| D312 | | AEDNRB721Q | DIODE | 1 | (H264*R APH) |
| D25 | | AERZ271KSBN | VARISTOR | 1 | 270V |
| D26,D27 | | AERZ102KSBN | VARISTOR | 2 | 1000V (CPH) |
| D28 | | AER241KD07A | VARISTOR | 1 | 240V |
| R311 | | AERJ06J102R | CHIP RESISTOR | 1 | 1KΩ,1/10W,5% |
| R224,R340,R341,R344,R490,R588 | | AERJ06J103R | CHIP RESISTOR | 6 | 10KΩ,1/10W,5% |
| R568,R583,R589,R590 | | AERJ06J103R | CHIP RESISTOR | 4 | 10KΩ,1/10W,5%(H264*R APH) |
| R221,R226,R342,R343,R496 | | AERJ06J104R | CHIP RESISTOR | 5 | 100Ω,1/10W,5% |
| R181,R320 | | AERJ06J220R | CHIP RESISTOR | 2 | 22Ω,1/10W,5% |
| R567 | | AERJ06J220R | CHIP RESISTOR | 1 | 22Ω,1/10W,5% (H264*R APH) |
| R182,R183 | | AERJ06J221R | CHIP RESISTOR | 2 | 220Ω,1/10W,5% |
| R220,R222,R223 | | AERJ06J222R | CHIP RESISTOR | 3 | 2.2KΩ,1/10W,5% |
| R330,R440 | | AERJ06J333R | CHIP RESISTOR | 2 | 33KΩ,1/10W,5% |
| R570 | | AERJ06J363R | CHIP RESISTOR | 1 | 36KΩ,1/10W,5% (H264*R APH) |
| R582 | | AERJ06J364R | CHIP RESISTOR | 1 | 360KΩ,1/10W,5% (H264*R APH) |
| R580 | | AERJ06J392R | CHIP RESISTOR | 1 | 3.9KΩ,1/10W,5% (H264*R APH) |
| R331,R441 | | AERJ06J471R | CHIP RESISTOR | 2 | 470Ω,1/10W,5% |
| R593 | | AERJ06J472R | CHIP RESISTOR | 1 | 4.7KΩ,1/10W,5% (H264*R APH) |
| R592 | | AERJ06J473R | CHIP RESISTOR | 1 | 47KΩ,1/10W,5% (H264*R APH) |
| R574 | | AERJ06J624R | CHIP RESISTOR | 1 | 620KΩ,1/10W,5% (H264*R APH) |
| R571 | | AERJ06J753R | CHIP RESISTOR | 1 | 75KΩ,1/10W,5% (H264*R APH) |
| R14,R180 | | D0AE103JA097 | CARBON FILM RESISTOR | 2 | 10KΩ,1/4W,5% |
| R228,R290 | | D0AE104J0001 | CARBON FILM RESISTOR | 2 | 100KΩ,1/4W,5% (H264*R APH) |
| R40 | | AERDY2TJ154T | CARBON FILM RESISTOR | 1 | 150KΩ,1/4W,5% |
| R12 | | D0AE331J0001 | CARBON FILM RESISTOR | 1 | 330Ω,1/4W,5% |
| R576-R578,R586 | | AEROY2F3300T | METAL FILM RESISTOR | 4 | 330Ω,1/4W,5% (H264*R APH) |
| ZD12 | | B0BA01400009 | ZENER DIODE | 1 | (H264*R APH) |
| RY1 | | K6B1AZA00005 | POWER RELAY | 1 | 18V |
| RY2-RY7 | | K6B1AZA00011 | POWER RELAY | 6 | |
| T10 | | AETP35K136A | LOW VOLTAGE TRANSFORMER | 1 | |
| VZ490 | | D3BB6103A006 | VARISTOR | 1 | 10KΩ |

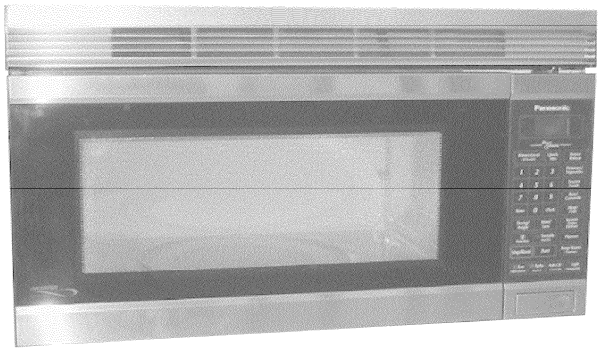
ORDER NO.SIMMC 0203005C1
E2

# Service Manual

## Microwave Oven

## NN-S262SF / NN-S262BF / NN-S262WF / NN-S252BF / NN-S252WF

## APH(USA)
## CPH(CANADA)



## SPECIFICATIONS

Specifications for APH:

| Specifications: / Model: | NN-S262SF APH | NN-S262BF/WF APH | NN-S252BF/WF APH |
|---|---|---|---|
| Power Source: | 120V AC Single Phase, 60Hz | | |
| Power Requirement: | 1430W | 1430W | 1430W |
| Output(IEC705-88): | 1200W | 1200W | 1200W |
| Microwave Frequency: | *2450MHz | | |
| Timer: | *99 min. 99 sec. | | |
| Outside Dimensions: | *29 7/8"(759mm)(W) x 15"(381mm)(D) x 16 7/16"(418mm)(H) | | |
| Oven Cavity Dimensions: | *23 1/4"(591mm)(W) x 14 7/16"(367mm)(D) x 9 1/2"(242mm)(H) | | |
| Weight: | *55lbs. (25.0 kg) | *53lbs. (24.0 kg) | *53lbs. (24.0 kg) |
| PbF | This product with PbF | | |
| Output power: IEC705-88 Test Procedure | | | |
| Specifications subject to change without notice. | | | |

Specifications for CPH:

| Specifications: / Model: | NN-S262SF CPH | NN-S262BF/WF CPH | NN-S252BF/WF CPH |
|---|---|---|---|
| Power Source: | 120V AC Single Phase, 60Hz | | |
| Power Requirement: | 1430W | 1430W | 1430W |
| Output(IEC705-88): | 1100W | 1100W | 1100W |
| Microwave Frequency: | *2450MHz | | |
| Timer: | *99 min. 99 sec. | | |
| Outside Dimensions: | *29 7/8"(759mm)(W) x 15"(381mm)(D) x 16 7/16"(418mm)(H) | | |
| Oven Cavity Dimensions: | *23 1/4"(591mm)(W) x 14 7/16"(367mm)(D) x 9 1/2"(242mm)(H) | | |
| Weight: | *55lbs. (25.0 kg) | *53lbs. (24.0 kg) | *53lbs. (24.0 kg) |
| PbF | This product with PbF | | |
| Output power: IEC705-88 Test Procedure | | | |
| Specifications subject to change without notice. | | | |

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## ⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

## WARNING

1. This product should be serviced only by trained, qualified personnel.
2. Though this product has been manufactured in compliance with:
   "Federal Performance Standard 21 CFR Subchapter J"(D.H.H.S): U.S.A. models
   or "Radiation Emitting Devices Act"(Health and Welfare Canada): Canadian models
   it is very important all repairs should be made in accordance with procedures described in this manual to avoid being exposed to excessive microwave radiation.
3. Check for radiation leakage before and after every servicing according to the "procedure for measuring radiation leakage."
4. If the unit cannot be repaired on site, advise the customer not to use until unit is repaired.
5. Any serviceman who learns of any accident pertaining to microwave radiation leakage including the oven operating with open door should immediately notify the appropriate address listed below and Center for Devices and Radiological Health, DHHS.

| | | | |
|---|---|---|---|
| IN U.S.A. (PASC) | Panasonic Services Company<br>50 Meadowland Parkway,<br>Secaucus, New Jersey 07094<br>Attention: Technical Service Division.<br>(201)348-7000 | IN PUERTO RICO (PSC) | PSC<br>San Gabriel Industrial Park<br>65th Infantry Ave. Km.9.5<br>Carolina, Puerto Rico 00985<br>(787)750-4300 |
| | | IN CANADA (PCI) | Panasonic Canada Inc.<br>5770 Ambler Drive, Mississauga,<br>Ontario, L4W2T3<br>(905)624-5010 |

6. There are special components used in the microwave oven which are important for safety. These parts are marked with a ⚠ on the replacement parts list. It is essential that these critical parts be replaced only with the manufacture's specified parts to prevent microwave leakage, shock, fire, or other hazards. Do not modify the orginal design.

# PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY

(A) Do not operate or allow the oven to be operated with the door open.

(B) Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs as necessary:
   (1) Interlock operation
   (2) Proper door closing
   (3) Seal and sealing surfaces (arcing, wear, and other damage)
   (4) Damage to or loosening of hinges and latches.
   (5) Evidence of dropping or abuse

(C) Before turning on microwave power for any service test or inspection within the microwave generating compartments, check the magnetron, waveguide or transmission line, and cavity for proper alignment, integrity and connections.

(D) Any defective or misadjusted components in the interlock, monitor, door seal, and microwave generation and transmission systems shall be repaired, replaced, or adjusted by procedures described in this manual before the oven is released to the owner.

(E) A microwave leakage check to verify compliance with the Federal Performance Standard should be performed on each oven prior to release to the owner.

## CAUTION

**About lead free solder (PbF)**

**Distinction of PbF PCB:** PCBs (manufactured) using lead free solder will have a PbF stamp on the PCB.

**Caution:**
- Pb free solder has a higher melting point than standard solder; Typically the melting point is 50-70˚F(30 - 40˚C) higher. Please use a high temperature soldering iron. In case of the soldering iron with temperature control, please set it to 700± 20˚F (370 ± 10˚C).
- Pb free solder will tend to splash when heated too high (about 1100˚F/600˚C).

Panasonic®

**DANGER OF HIGH VOLTAGE AND HIGH TEMPERATURE (HOT/LIVE) OF THE INVERTER POWER SUPPLY (U)**

## INVERTER WARNING

**This Inverter board looks like a regular PCB. However, this PCB drives the magnetron tube with extremely high voltage and high current.** NEW H.V.

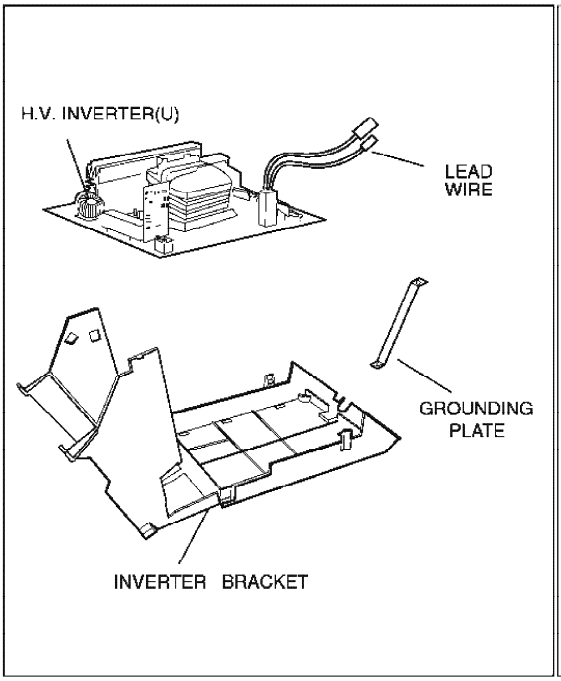
**IT HAS:** 1. **Very high voltage and high current circuits.**
**It functions the same as the high voltage transformer and high voltage capacitor in ordinary microwave ovens.**

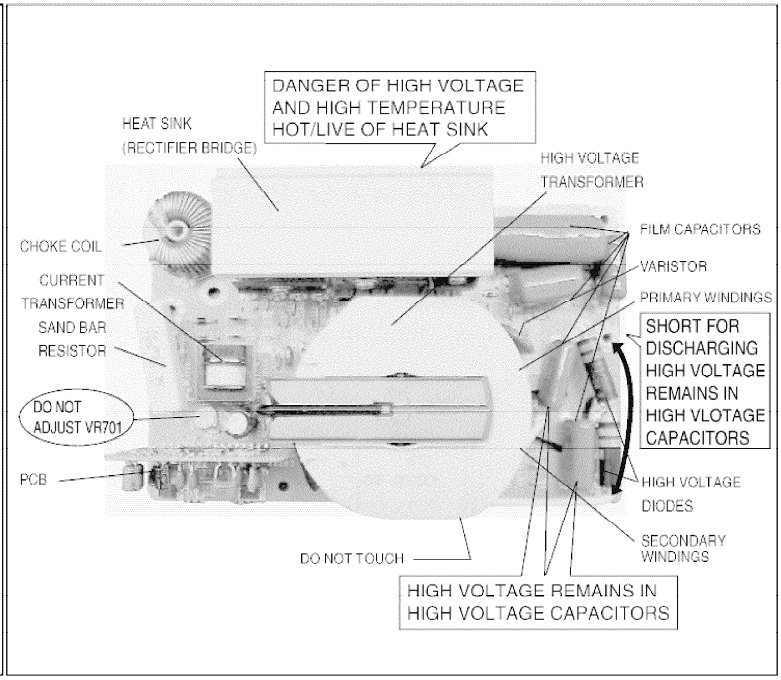
2. **Aluminum heat sink is energized with very high voltages and high heat energy.**
3. **Very high voltage may remain in circuitry even when oven is off. High voltage may remain in the capacitors on the board.**

**DO NOT:**

* 1. **Do not touch circuitry because it has very hot (high voltage) circuitry. Even when replacing board, extreme care should be taken to avoid possible electric shock hazards. High voltage may remain in circuit.**
* 2. **Do not touch aluminum heat sink because it is very hot in high voltage and also very hot in high heat energy.**
* 3. **Do not try to adjust or tamper with preset volume on the Inverter board because it is very dangerous to adjust without proper test equipment.**
* 4. **Do not test oven while Inverter grounding plate or screws are loose. It is very dangerous to operate H.V. Inverter Circuit (U) with loose mounting screws or if improperly grounded.**
* 5. **For USA only:**
**Do not try to repair Inverter PCB because it is very dangerous to repair it. Replace as whole High Voltage Inverter Circuit unit and return fully re-packed with original shipping box and shipping materials.**

## INVERTER POWER SUPPLY



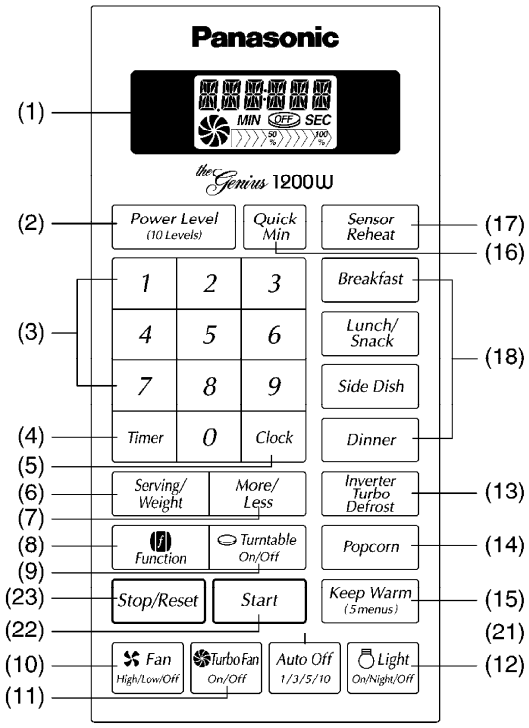



# 1. FEATURE CHART

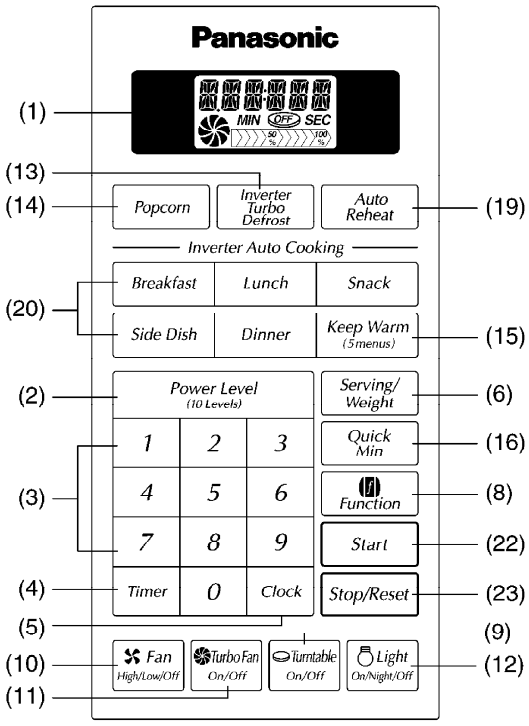
| MODEL / FEATURE | NN-S262 | NN-S252 |
|---|---|---|
| Five Stage Cooking | O | O |
| Inverter Turbo Defrost | O | O |
| Sensor Reheat | O | - |
| Sensor Cooking | O | - |
| Auto Reheat | - | O |
| Inverter Auto Cooking | - | O |
| Quick Min | O | O |
| Popcorn | O | O |
| Digital Clock | O | O |
| Timer | O | O |
| Child Safety Lock | O | O |
| Vent Fan | O | O |
| Cooktop Light | O | O |

# 2. CONTROL PANEL (APH)

NN-S262




NN-S252




**(1) Display Window**
**(2) Power Level Pad**
**(3) Number Pads**
**(4) Timer Pad**
**(5) Clock Pad**
**(6) Serving/Weight Pad**
**(7) More/Less Pad**
**(8) Function Pad**
**(9) Turntable On/Off Pad**
**(10) Fan High/Low/Off Pad**
**(11) Turbo Fan On/Off Pad**
**(12) Light On/Night/Off Pad**
**(13) Inverter Turbo Defrost Pad**
**(14) Popcorn Pad**
**(15) Keep Warm Pad**
**(16) Quick Min Pad**
**(17) Sensor Reheat Pad**
**(18) Sensor Cooking Pads**
**(19) Auto Reheat Pad**
**(20) Inverter Auto Cooking Pads**
**(21) Auto Off Pad**

**(22) Start Pad**

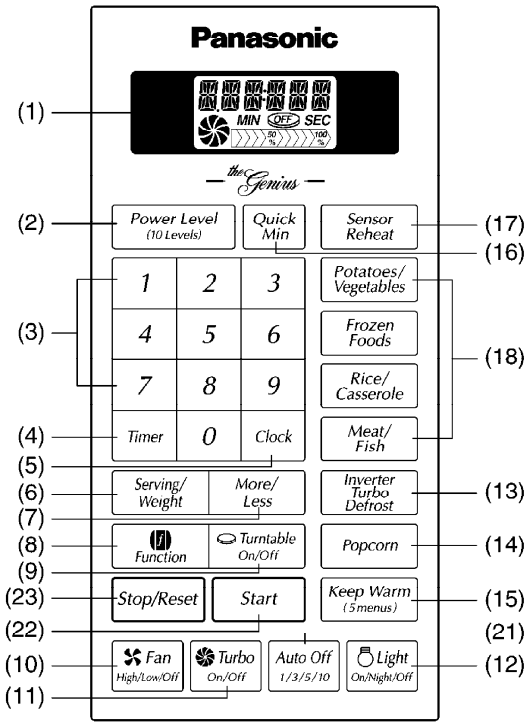
One tap allows oven to begin functioning. If door is opened or STOP/RESET Pad is pressed once during oven operation, START Pad must again be pressed to restart oven.

**(23) Stop/Reset Pad**

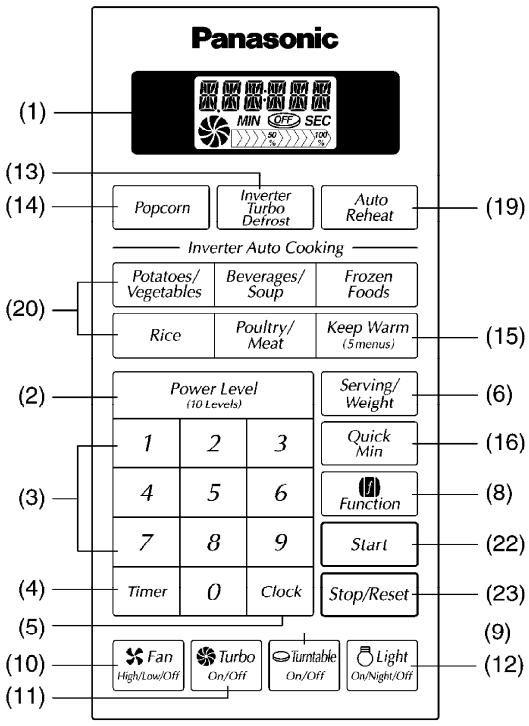
Before cooking: One tap clears your instructions.
During cooking: One tap temporarily stops the cooking process. Another tap cancels all your instructions and time of day or colon appears on the display window.

# 3. CONTROL PANEL (CPH)

NN-S262




NN-S252




**(1) Display Window**
**(2) Power Level Pad**
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Before cooking: One tap clears your instructions.
During cooking: One tap temporarily stops the cooking process. Another tap cancels all your instructions and time of day or colon appears on the display window.

# 4. OPERATION AND DIGITAL PROGRAMMER CIRCUIT TEST PROCEDURE

## 4.1. To set clock

| OPERATION | SCROLL DISPLAY |
|---|---|
| 1. Plug the power supply cord into wall outlet. | BEFORE USE REFER TO OPERATING INSTRUCTIONS |
| 2. Press [Clock] pad. | ☼ ☼ |
| 3. Enter time of day (TOD) by pressing appropriate [Number] pads. | 11 ☼ 25 |
| 4. Press [Clock] pad. TOD has now been resistered into the digital programmer circuit and will count up by minutes. | 11 : 25 |

## 4.2. Time cooking for two stage

| OPERATION | SCROLL DISPLAY |
|---|---|
| 1. Place a water load in the oven. | |
| 2. Press [Power Level] pad once to set High power.<br>(1st stage) | P 10 |
| 3. Set for 5 seconds by pressing [ Number ] pads.<br>5 sec.= [5] | 5<br>SEC |
| 4. Press [Power Level] pad 6 times to set Medium power.<br>(2nd stage) | P 5 |
| 5. Set for 1 minute by pressing [Number ] pads.<br>1 Min.= [1] [0] [0] | 1 00<br>MIN SEC |

| OPERATION | SCROLL DISPLAY |
|---|---|
| 6. Press [Start] pad. | 5 SEC |
| 7. When 1st stage cooking time has elapsed. Oven beeps twice and automatically switches to 2nd stage cooking. | 1 MIN 0 0 SEC |
| 8. When 2nd stage cooking time has elapsed, oven beeps 5 times and shuts off. | Time of day or colon if set appears in the display |

## 4.3. Inverter turbo defrost

| OPERATION | SCROLL DISPLAY |
|---|---|
| 1. Press [Inverter Turbo Defrost] Pad. | INVERTER TURBO DEFROST<br>SET WEIGHT |
| 2. Set the weight for 1 lb by pressing [Number] pads.<br>1 lb= [1] [0] | 1.0 LB |
| 3. Press [Start] pad. | 5 MIN 28 SEC |
| 4. Press [Stop/Reset] Pad twice.Oven shuts off. | Time of day or colon if set appears in the display. |

## 4.4. Inverter auto cooking

| OPERATION | SCROLL DISPLAY |
|---|---|
| 1. Press [Beverages] pad once. | BEVERAGES<br>PRESS SERVING WEIGHT |
| 2. Press [Serving/Weight ] pad twice to select 2 cups | 2 CUPS |
| 3. Press [Start] pad. | |
| When cooking time has elapsed, Oven beeps 5 times and shuts off. | Time of day or colon if set appears in the display. |

## 4.5. Popcorn

| OPERATION | SCROLL DISPLAY |
|---|---|
| 1. Press [Popcorn] pad once for 3.5 oz serving. (Select 3.5, 3.0, 2.85, 2.65, 1.75 oz) | |
| 2. Press [Start] pad. | |
| When cooking time has elapsed, Oven beeps 5 times and shuts off. | Time of day or colon if set appears in the display. |

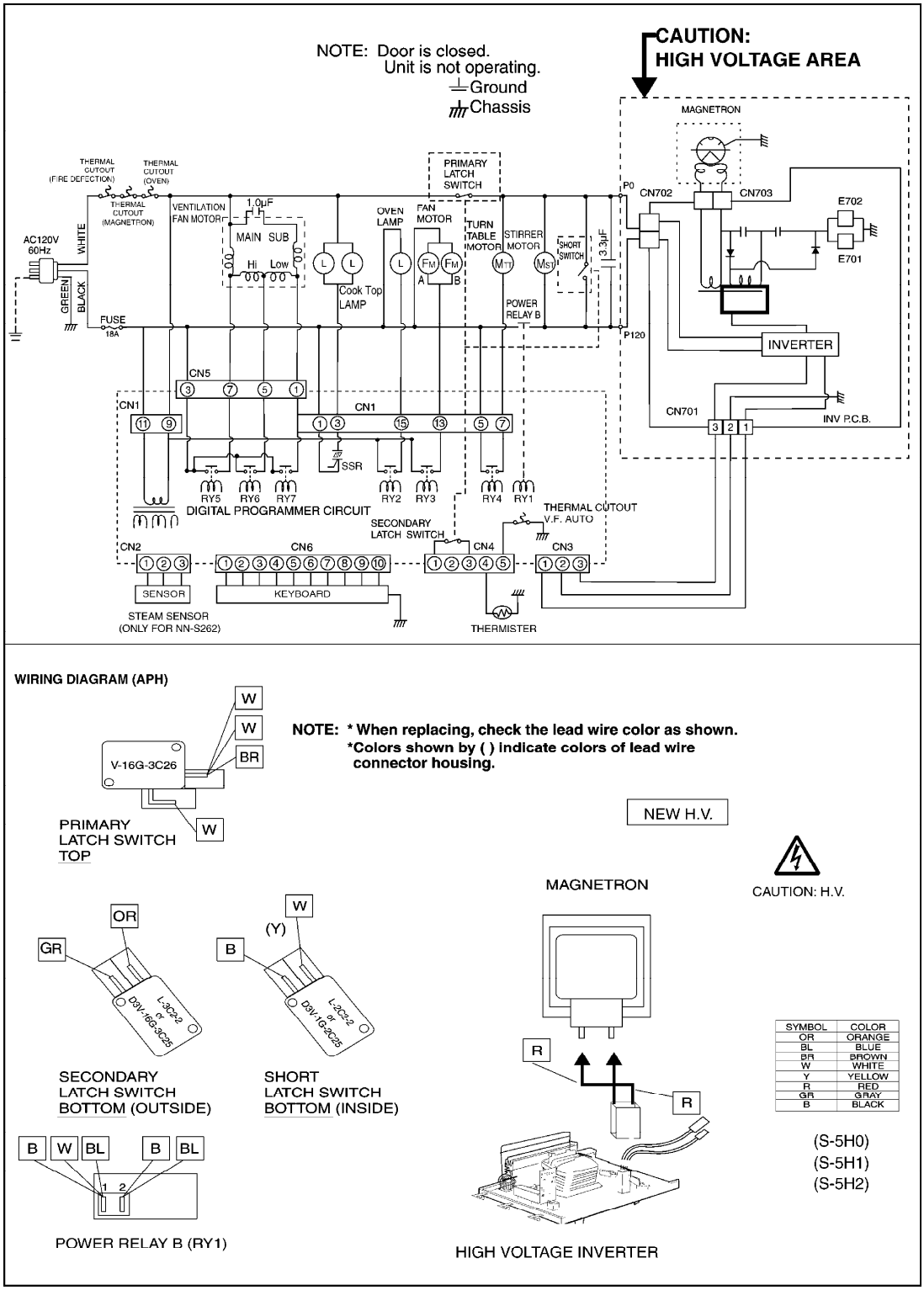
## 4.6. Auto reheat

| OPERATION | SCROLL DISPLAY |
|---|---|
| 1. Press [Auto Reheat] pad twice for two servings. | AUTO REHEAT |
| 2. Press [Start] pad.Auto Reheat cycle begins time counts down. | 1 MIN 21 SEC |
| 3.When cooking time has elapsed, Oven beeps 5 times and shuts off. | Time of day or colon if set appears in the display. |

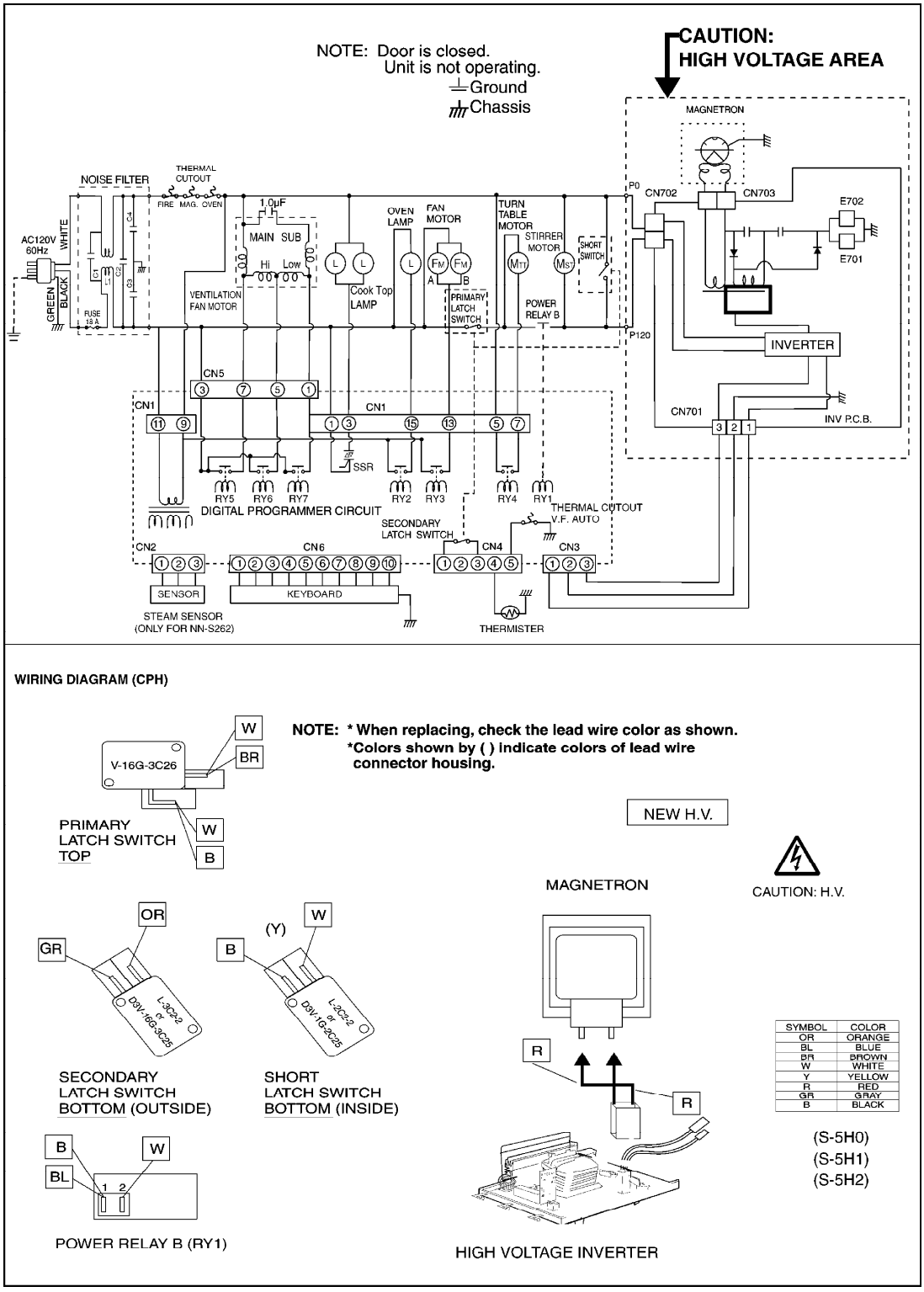
## 4.7. Power level

| Press Power Level | Power Level | Display Window |
|---|---|---|
| once | P10 (HIGH) | P10 |
| twice | P9 | P9 |
| 3 times | P8 | P8 |
| 4 times | P7 (MED.HIGH) | P7 |
| 5 times | P6 (MEDIUM) | P6 |
| 6 times | P5 | P5 |
| 7 times | P4 | P4 |
| 8 times | P3 (MEDIUM-LOW) | P3 |
| 9 times | P2 | P2 |
| 10 times | P1 (LOW) | P1 |

# 5. SCHEMATIC DIAGRAM (APH)




# 6. SCHEMATIC DIAGRAM (CPH)




# 7. DESCRIPTION OF OPERATING SEQUENCE

## 7.1. Variable power cooking control

**High Voltage Inverter Power supply (U) controls output power by the signal from Digital Programmer Circuit (DPC). Power relay stays ON for P4 to P10 and For P1 to P3, both inverter drive signal and power relay to control output power.**

**NOTE:**

**The ON/OFF time ratio does not correspond with the percentage of microwave power since approximately 2 seconds are required for heating of magnetron filament.**

Variable Power Cooking

| POWERSETTING | | OUTPUT POWER(%) | ON-OFF TIME OF POWER RELAY B (RY1) | |
|---|---|---|---|---|
| | | APPROX. | ON(SEC) | OFF(SEC) |
| HIGH | P10 | 100% | 22 | 0 |
| | P9 | 90% | 22 | 0 |
| | P8 | 80% | 22 | 0 |
| MEDIUM-HIGH | P7 | 70% | 22 | 0 |
| MEDIUM | P6 | 60% | 22 | 0 |
| | P5 | 50% | 22 | 0 |
| | P4 | 40% | 22 | 0 |
| MEDIUM-LOW | P3 | 30% | 17 | 5 |
| | P2 | 20% | 11 | 11 |
| | P1 | 10% | 6 | 16 |
| DEFROST | P3 | 30% | 17 | 5 |

## 7.2. Inverter power supply circuit [NEW H.V.]

**This Inverter Power Supply Circuit supplies 4,000V DC to the magnetron tube from the line voltage, 120V 60Hz AC input. functions as the H.V. transformer, the H.V.capacitor and H.V.Diode.**

1. **The AC input voLtage 120V 60Hz is rectified to DC voltage immediately.**
2. **DC voltage will be supplied to the switching devices called IGBT. These devices will be switched ON-OFF by the 20 to 40 kHz PWM. (pulse width modulation) signal from the microcomputer in the DPC.**
3. **This drives the High voltage transformer to increase up to 2,000V AC and approximately 3V AC by means of transformer.**
4. **Then the half-wave doubler voltage rectifier circuit, consisting of the H.V. diodes and Capacitors, generates the necessary 4,000V DC needed for the magnetron.**
5. **Output power of the magnetron tube is always monitored by the signal output from the current transformer built into the inverter ciruit.**
6. **Then this signal will be fed back to the microcomputer in the DPC to determine operating conditions and output necessary to control PWM signal to the Inverter Power Supply to control output power.**

## 7.3. Inverter turbo defrost

**When this Auto Control feature is selected and the Start Pad is tapped:**

1. **The digital programer circuit determines the power level and cooking time to complete cooking and indicates the operating state in the display window. Table shows the corresponding cooking times for respective serving by categories.**
2. **When cooking time the display window has elapsed, the oven tums off automatically by a control signal from the digital programmer circuit.**

Inverter Turbo Defrost

| WEIGHT SELECTED | COOKING TIME |
|---|---|
| 1.0LB | 5 min.28 sec. |

# 8. CAUTIONS TO BE OBSERVED WHEN TROUBLESHOOTING

**Unlike many other appliances, the microwave oven is high-voltage, high-current equipment. Though it is free from danger in ordinary use, extreme care should be taken during repair.**

| CAUTION |
|---|
| **Servicemen should remove their watches whenever working close to or replacing the magnetron.** |

## 8.1. Check the grounding

**Do not operate on a 2-wire extension cord. The microwave oven is designed to be used when grounded. When it is inoperative, make sure it is grounded properly before beginning repair work.**

## 8.2. Inverter warnings [NEW H.V.]

**DANGER OF HIGH VOLTAGE AND HIGH / TEMPERATURE (HOT/LIVE) OF THE INVERTER / POWER SUPPLY (U)**

**This High Voltage Inverter Power Supply circuit supplies very high voltage and very high current for the magnetron tube. Though it is free from danger in ordinary use, extreme care should be taken during repair. As you can see, it looks like a TV flyback transformer, however the current is extremely large and so danger exists because of its high current and high voltages.**

**The aluminum heat sink is also energized with high voltage (HOT), so do not touch when AC input terminal is connected to the power line because one of the IGBT switching power devices (Collector) is directly connected to the Aluminum heat sink.**

**The Aluminum heat sink may be HOT from heat energy; therefore, extreme care should be taken during servicing and replacing.**

**WARNING OF INVERTER POWER SUPPLY (U) / GROUNDING**

**Check the High Voltage Inverter Power Supply circuit grounding. This High Voltage Inverter Power Supply circuit board must have a proper chassis ground by the grounding bracket to the chassis ground; otherwise, this H.V. Inverter circuit board will expose very high voltage and cause extreme DANGER! Be sure to have proper grounding by the grounding plate and screws.**

**WARNING OF DISCHARGING HIGH VOLTAGE CAPACITORS**

**Warning about the electric charge in the high voltage capacitors. For about 30 seconds after the oven is turned off, an electric charge remains in the high voltage capacitors in the inverter power supply circuit board.**

**When replacing or checking parts, remove the power plug from the outlet and short the Inverter output terminal of the magnetron filament terminals to the chassis ground with an insulated handle screwdriver to discharge. Please make sure to touch chassis ground side first then short to the output terminals.**

**WARNING**

**There is high-voltage present, with high-current capabilities in the circuits of the primary, and secondary windings, choke coil and heat sink of the Inverter. It is extremely dangerous to work on or near these circuits with oven energized.**
**DO NOT measure the voltage in the high voltage circuit including filament voltage of magnetron.**

**WARNING**

**Never touch any circuit wiring with your hand nor with an insulated tool during operation.**

## 8.3. When parts must be replaced, remove the power plug from the outlet.

## 8.4. When the 18 Amp fuse is blown due to the operation of short switch:

**WARNING**

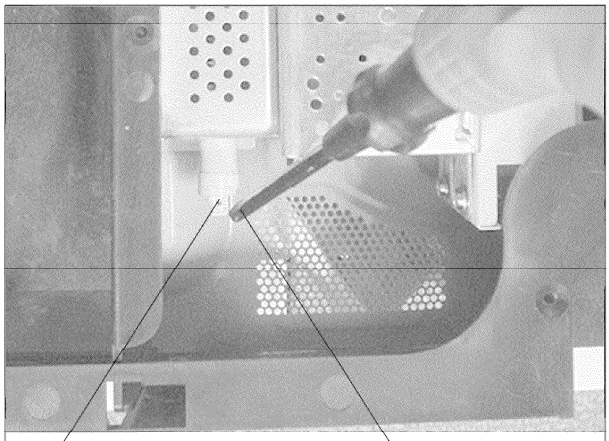
**When the 18 Amp. fuse if blown due to the operation of short switch, you must replace Primary latch switch and short switch. Also replace power relay B (RY1) when the continuity check reads shorted contacts (1-2).**

1. **This is mandatory. Refer to "Measurements and Adjustments" for these switches.**
2. **When replacing the fuse, confirm that it has the appropriate rating for these models.**
3. **When replacing faulty switches, be sure mounting tabs are not bent, broken or otherwise deficient in their ability to hold the switches.**

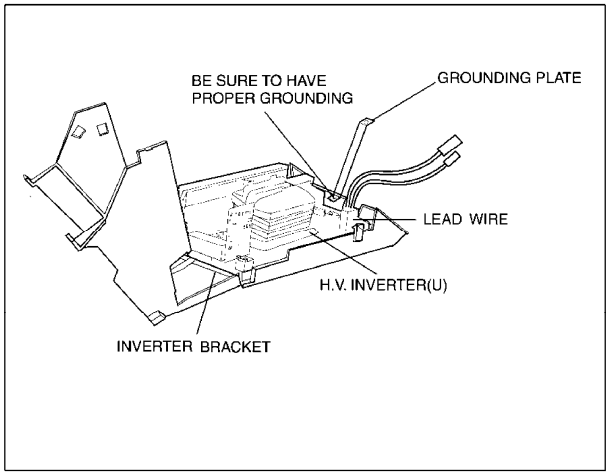
## 8.5. Avoid inserting nails, wire, etc. through any holes in the unit during operation.

**WARNING**

**Never insert a wire, nail or any other metal object through the lamp holes on the cavity or any other holes or gaps, because such objects may work as an antenna and cause microwave leakage.**




Touch chassis side first then short to the terminal of the magnetron filament terminal.




## 8.6. Confirm after repair

1. **After repair or replacement of parts, make sure that the screws of the oven, etc. are neither loose nor missing. / Microwaves might leak if screws are not properly tightened.**
2. **Make sure that all electrical connections are tight before inserting the plug into the wall outlet.**
3. **Check for microwave energy leakage. (Refer to procedure for measuring microwave energy leakage.)**

**CAUTION / MICROWAVE RADIATION**

**DO NOT BECOME EXPOSED TO RADIATION FROM THE MICROWAVE GENERATOR OR OTHER PARTS CONDUCTING MICROWAVE ENERGY.**

**IMPORTANT NOTICE [NEW H.V.]**

**1.The following components have potentials above 2000V while the appliance is operated.**

*** Magnetron**

*** High voltage transformer**

*** High voltage diode**

*** High voltage capacitor**

**Pay special attention to these components.**

**2.When the appliance is operated with the door hinge or magnetron fixed incorrectly, the microwave leakage can reach more than 5mW/cm2. After repair or exchange, it is very important to check if magnetron and the door hinge is correctly fixed.**

# 9. DISASSEMBLY AND PARTS REPLACEMENT PROCEDURE

## 9.1. Magnetron

**1. Discharge the high voltage capacitor.**

**2. Disconnect 2 connectors from fan motor B.**

**3. Remove 4 screws holing fan motor B (U) assembly.**

**4. Remove 3 screws which holding exhaust guide (U) onto oven.**

**5. Tilt exhaust guide (U).**

**6. Remove 1 screw holding air guide A and then remove air guide A.**

**7. Remove 2 high voltage lead wires from magnetron filament terminal.**

**8. Remove 4 screws holding magnetron.**

**NOTE:**

**After replacing the magnetron, tighten mounting screws properly making sure there is no gap between the waveguide and the magnetron to prevent microwave leakage.**

**CAUTION**

**When replacing the magnetron, be sure the antenna gasket is in place.**

## 9.2. Digital programmer circuit (DPC) and membrane key board.

**NOTE:**

**Be sure to ground any static electric charge built up on your body**

**before handling the DPC.**

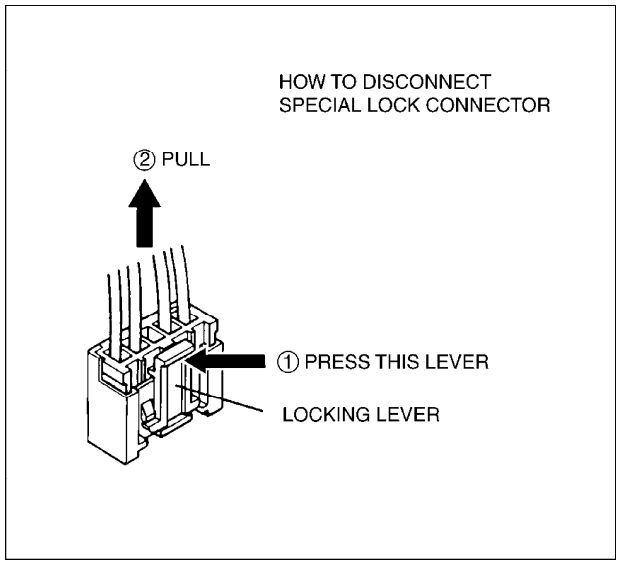
1. **Disconnect all connectors from D.P.C.**
2. **Remove 2 screws holding escutcheon base and slide the escutcheon base upward slightly.**
3. **Release CN6 connector's lock of D.P.C by pushing both levels to inside and pull them upward, and remove flat cable of membrane keyboard.**
4. **Remove 3 screws holding D.P.C.**

**To replace membrane key board**

5. **Push the upper part of key board (display window portion) from back of escutcheon base and peel off escutcheon sheet and membrane key board completely from escutcheon base.**

**NOTE:**

**1. The membrane key board is attached to the escutcheon base with double faced adhesive tape. Therefore, applying hot air such as using a hair dryer is recommended for smoother removal. / 2. When installing new membrane key board, make sure that the surface of escutcheon base is cleaned sufficiently so that any problems (shorted contacts or uneven surface) can be avoided. / 3. Alignment position of membrane key board is as follows; / Membrane key board: Right and upper edges / Escutcheon sheet: Right and upper edges**




## 9.3. Low voltage transformer and/or power relays (RY1, RY2)

**NOTE:**

**Be sure to ground any static electric charge built up on your body**

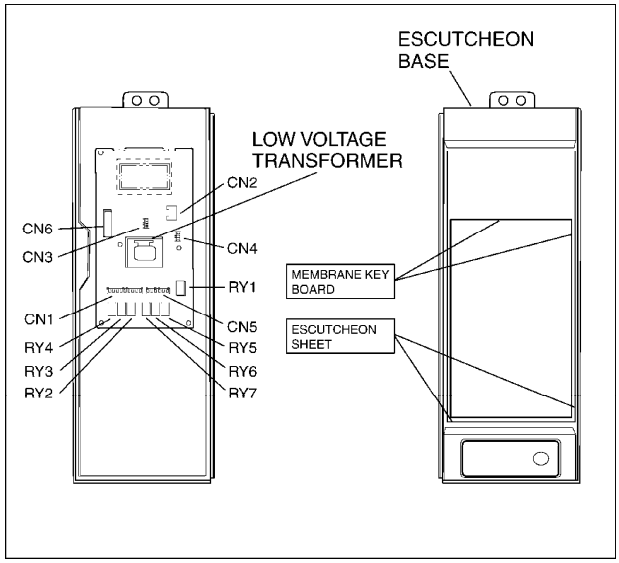
**before handling the DPC.**

**(A) Using solder wick or a desoldering tool and 30W soldering iron, carefully remove all solder from the terminal pins of the low voltage transformer and/or power relays.**

**NOTE:**

**Do not use a soldering iron or desoldering tool of more than 30 watts on DPC contacts.**

**(B) With all the terminal pins cleaned and separated from DPC contacts, remove the defective transformer/power relays making sure all terminal pins are inserted completely. Resolder all terminal contacts carefully.**




## 9.4. Inverter power supply (U)

**CAUTIONS WHILE REPLACING INVERTER / POWER SUPPLY (U)**

**1. Make sure to leave the grounding plate in its place.**

**2. Make sure to securely tighten grounding screw from the bottom of chasis (base).**

**3. Securely connect 3 lead wire connectors.**

**4. Make sure the heat sink has enough space (gap) from the oven. Take special care not to touch any lead wire to the aluminum heat sink because it is hot.**

**1. Remove 1 screw holding orifice on the cover plate.**

**2. Remove 1 screw holding top front cover on the oven.**

**3. Remove 1 screw holding Inverter grounding plate on the oven.**

**4. Remove 3 screws holding Inverter bracket on top front cover.**

**5. Slide 2 locking of Inverter bracket at the top front cover slightly.**

**6. Disconnect 2 lead wires from fan motor A terminals.**

**7. Remove 1 screw holding orifice on the Inverter bracket.**

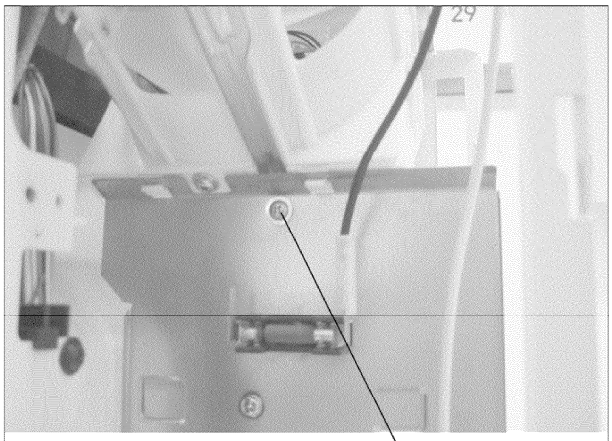
**8. Release 2 tabs to make Inverter bracket flat, and then remove orifice.**

**9. Release 2 tabs on the Inverter bracket and make flat.**

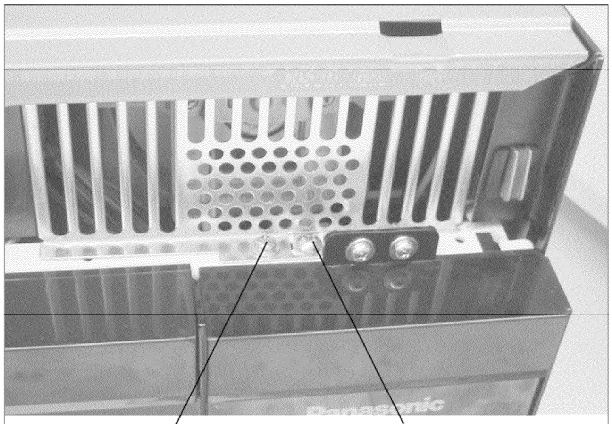
**10. Unplug 3 connector on H.V. Inverter (U).**

**11. Remove 3 screws holding H.V. Inverter (U) onto Inverter bracket.**

**12. Remove 1 screw holding grounding Plate on the H.V. Inverter (U).**

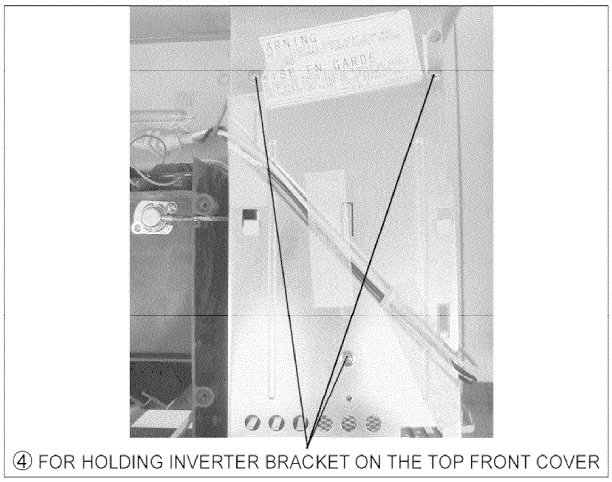



① FOR HOLDING ORIFICE ON THE COVER PLATE



② FOR HOLDING TOP FRONT COVER ON THE OVEN

③ FOR HOLDING INVERTER GROUNDING PLATE ON THE OVEN




## 9.5. Door assembly

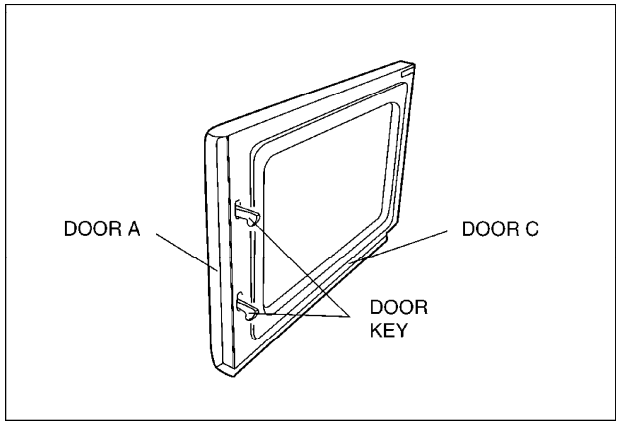
1. **Remove door C from door E by carefully pulling outward starting from upper right hand corner using a flat blade screwdriver.**
2. **Separate door E from tabs on door A and remove door A.**
3. **Remove door screen B from door A.**
4. **Remove door key and door key spring.**
5. **Open Door E at the opening angle of approximately 10°(Note: The door cannot be removed if the opening angle is greater than 10°).**
6. **Remove the door E from its hinges by pushing the door E's bottom upward and out.**
7. **Replace other components.**

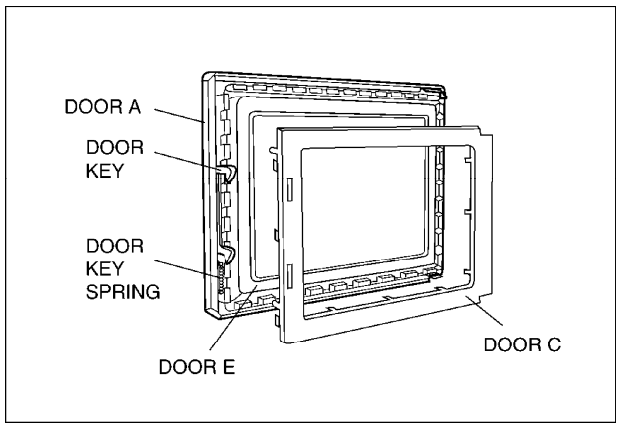
**NOTE:**

**Door alignment is critical. If door is misaligned, apply pressure until alignment is achieved.**

**NOTE:**

**After replacement of the defective component parts of the door, reassemble, install, and perform microwave leakage test.**



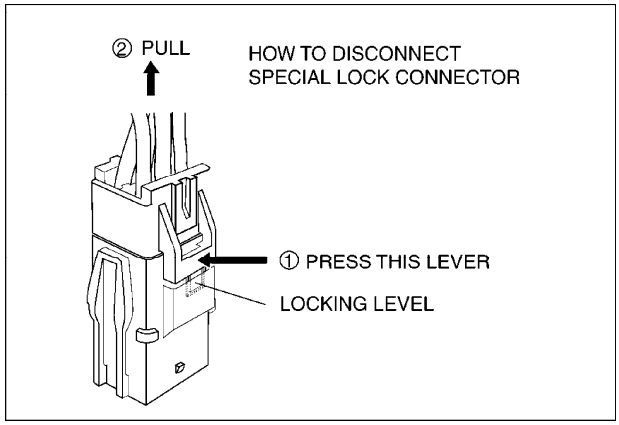



## 9.6. Stirrer motor

1. Release 1 canoe clip on the cover and then remove the cover.
2. Pull out stirrer.
3. Remove 3 screws which holding exhaust guide A on the oven.
4. Tilt exhaust guide A.
5. Disconnect 2 connectors from stirrer motor.
6. Remove 1 screw holding stirrer motor.
7. Release from retainer tab by turn spinning certain angle, remove stirrer motor.

## 9.7. Blower motor (U)

1. Disconnect 1 connector from blower motor (U).
2. Remove 2 screws which holding blower motor (U) on the oven.
3. Remove blower motor (U).

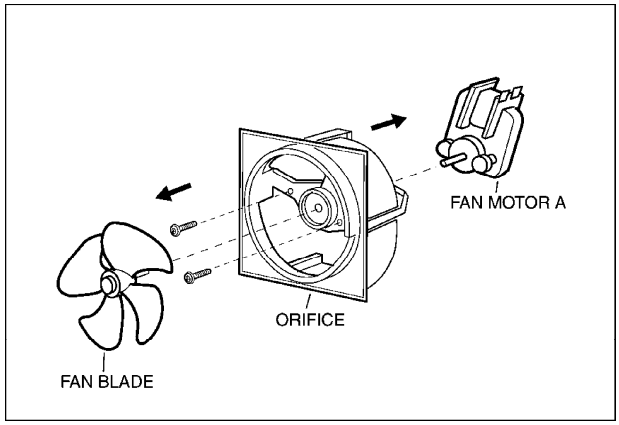



## 9.8. Fan motor A (for H.V. inverter (U) cooling)

**Disassembly procedure step 1~8 same as above H.V. Inverter (U).**

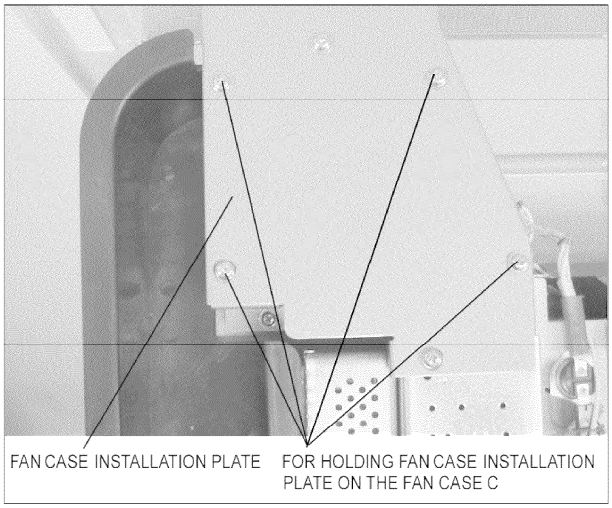
**9. Pull out fan blade.**

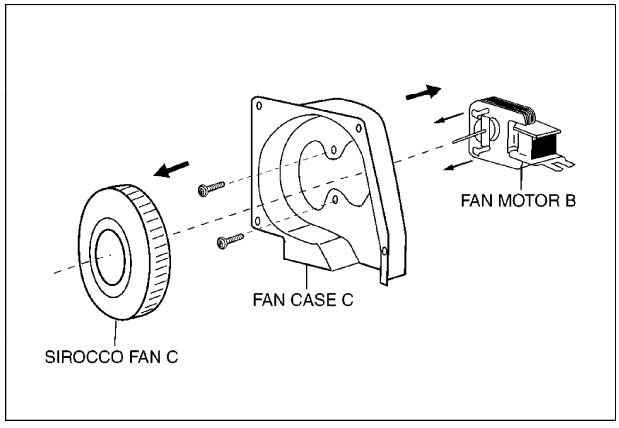
**10. Remove 2 screws which holding fan motor A on the orifice, and remove fan motor A.**




## 9.9. Fan motor B (for magnetron cooling)

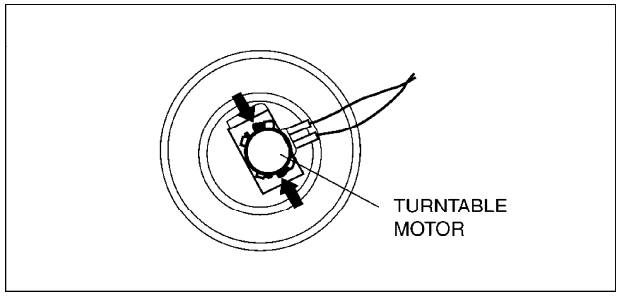
1. Disconnect 2 lead wires from fan motor B terminals.
2. Remove 4 screws holing fan motor B(U)Assembly.
3. Remove 4 screws which holding fan case installation plate on the fan case C.
4. From interior of fan case C, remove 2 screws holding fan motor B.




## 9.10. Turntable motor

1. Disconnect 2 lead wires from turntable motor terminals.
2. Remove 1 screw holding turntable motor.
3. Release from retainer tab by turn spinning certain angle, remove turntable.




# 10. COMPONENT TEST PROCEDURE

**CAUTION [NEW. H.V.]**

**1. High voltage is present at the high voltage terminal of the High Voltage Inverter (U) including aluminum heat sink during any cook cycle.**

**2. It is neither necessary nor advisable to attempt measurement of the high voltage.**

**3. Before touching any oven components, or wiring, always unplug the oven from its power source and discharge the high voltage capacitors.**

## 10.1. Primary latch switch, secondary (secondary latch switch and power relay B) interlocks.

1. Unplug the lead connectors to Power Relay B and verify continuity of the power relay B 1-2 terminals.
2. Unplug lead connectors to Primary Latch Switch and Secondary Latch Switch.
3. Test the continuity of switches at door opened and closed positions with ohm meter (low scale). / Normal continuity readings should be as follows.

| | Door Closed | Door Opened |
|---|---|---|
| Primary Latch Switch | 0 Ω (close) | ∞ Ω (open) |
| Secondary Latch Switch | 0 Ω (close) | ∞ Ω (open) |
| Power Relay B | ∞ Ω (open) | ∞ Ω (open) |

## 10.2. Short switch & monitor

1. Unplug lead wires from Inverter Power Supply (U) primary terminals.
2. Connect test probes of ohm meter to the disconnected leads which

**were connected to Inverter Power Supply (U).**

**3. Test the continuity of short switch with door opened and closed positions using lowest scale of the ohm meter. / Normal continuity readings should be as follows.**

| Door Opened | Door Closed |
|---|---|
| 0 Ω | ∞ Ω |

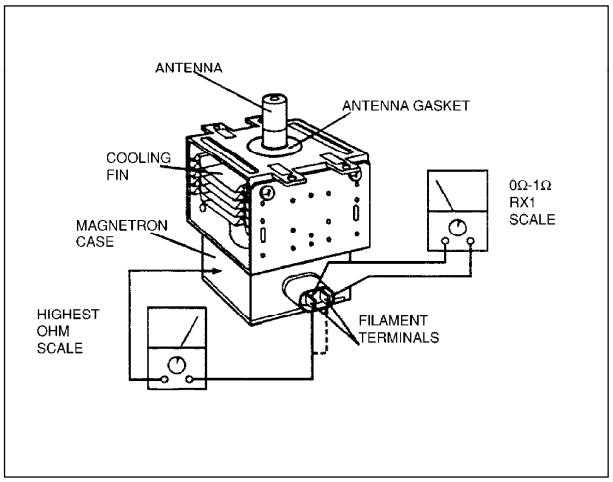
## 10.3. Magnetron

**Continuity checks can only indicate an open filament or a shorted magnetron. To diagnose for an open filament or shorted magnetron.**

**1. Isolate magnetron from the circuit by disconnecting the leads.**

**2. A continuity check across magnetron filament terminals should indicate one ohm or less.**

**3. A continuity check between each filament terminal and magnetron case should read open.**

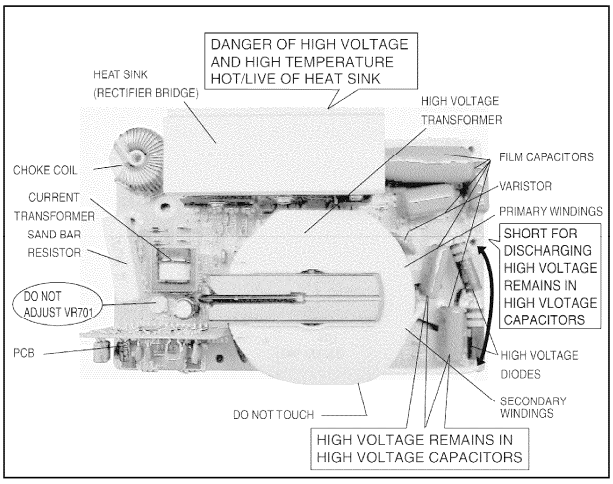



## 10.4. Membrane key board (Membrane switch assembly)

**Check continuity between switch terminals, by tapping an appropriate pad on the key board. The contacts assignment of the respective pads on the key board is as shown in digital programmer circuit.**

## 10.5. Inverter power supply (U)

**DO NOT try to REPAIR this H.V. Inverter power supply (U).Replace as whole H.V. Inverter(U) Unit.**




**DANGER HIGH VOLTAGE**

**Test if failure codes of H97 or H98 appears by doing the following procedure. It is recommended to use an AC line input current Ampere meter for testing.**

**Test1**

**1. Program DPC.**
   **A. Tap Clock**
   **B. Tap Timer**
   **C. Tap Start**
   **D. Tap Power Level**

**2. Place 1 liter of water load into oven cavity.**

**3. Unplug 2 pin H.V. lead wire connector CN703 from magnetron tube.**

**4. Program oven at High power for 1 minute and press start.**
   **A. After approximately 23 seconds, oven stops.**
   **B. During oven operation, input current is approximately 0.5 to 1A. If both a and b are OK, please proceed to test 2.**

| | INPUT AMPERE | FAILURE CODE |
|---|---|---|
| Unplug CN703 | 0.5 to 1A | Oven stops in 23 seconds after started. |

**Test2**

**Continued from Test 1**

**1. Unplug 3 pin connector CN701, CN703 remains unplug.**

**2. Set oven at High power for 1 minute and start.**
   **A. After approximately 3 seconds, oven stops.**

**B. During oven operation, input current is approximately less than 0.4A.**

| | INPUT AMPERE | FAILURE CODE |
|---|---|---|
| Unplug CN701 | <0.4A | Oven stops in 3 seconds after started. |

**If both a and b are OK, the Inverter Power Supply (U) can be determined OK.**

# 11. MEASUREMENTS AND ADJUSTMENTS

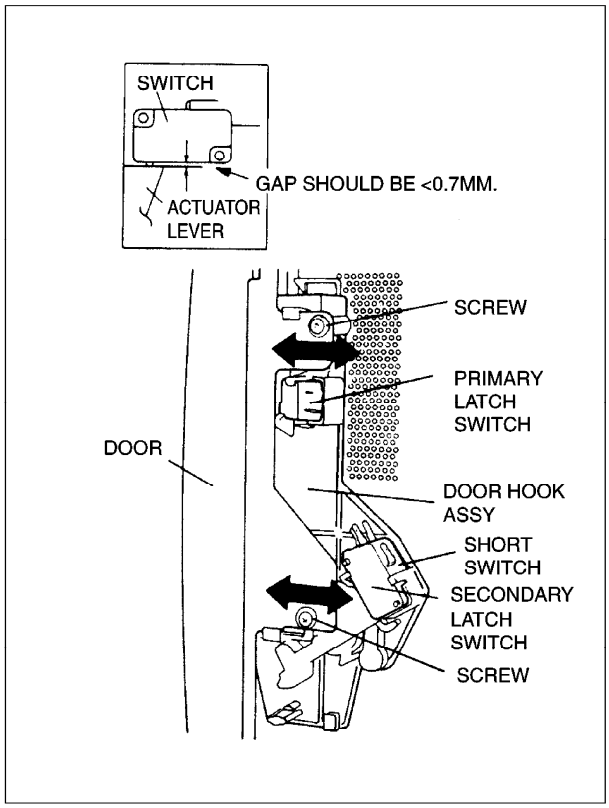
**WARNING**

- For continued protection against radiation hazard, replace only with identical replacement parts (For touch models Part No. A 6142 - F60, Type No. V-16G-3C26 for Primary latch switch; Part No. A61425180AP, Type No. L-3C2-2 for Secondary latch switch and Part No. A61785180AP, Type No. L-2C2-2 for short switch.)
- When the 18 Amp fuse is blown due to the operation of the short switch, you must replace power relay B. Primary latch switch and the short switch. Then follow the installation procedures below.
- Interlock switch replacement In replacing faulty switches, be sure mounting tabs are not bent, broken or otherwise deficient in their ability to hold the switches.
- Refer to schematic diagram to ensure proper connection.

## 11.1. Adjustment of primary latch switch, secondary latch switch and short switch.

1. **When mounting Primary latch switch,Secondary latch switch and short switch to door hook assembly, mount the Primary latch switch, the Secondary latch switch and the short switch to the door hook assembly as shown in table.**
   **NOTE:**
   **No specific adjustment during installation of Primary latch switch, Secondary latch switch and short switch to the door hook is necessary.**
2. **When mounting the door hook assembly to the oven assembly, adjust the door hook assembly by moving it in the direction of arrow in the illustration so that the oven door will not have any play in it. Check for play in the door by pulling the door assembly. Make sure that the latch keys move smoothly after adjustment is completed. Completely tighten the screws holding the door hook assembly to the oven assembly.**
3. **Reconnect the short switch and check the continuity of the monitor**

**circuit and all latch switches again by following the components test procedures.**




## 11.2. Measurement of microwave output

**The output power of the magnetron can be determined by performing IEC standard test procedures. However,due to the complexity of IEC test procedures, it is recommended to test the magnetron using the simple method outlined below.**

**Necessary Equipment:**

***1 liter beaker *Glass thermometer / *Wrist watch or stopwatch**

**NOTE:**

**Check the line voltage under load.Low voltage will lower the magnetron output. Take the temperature readings and heating time as accurately as possible.**

1. **Fill the beaker with exactly one liter of tap water.Stir the water using the thermometer and record the beaker's temperature. (recorded as T1).**
2. **Place the beaker on the center of glass cook plate. / Set the oven for High power and heat it for exactly one minute.**
3. **Stir the water again and read the temperature of the beaker. (recorded as T2).**
4. **The normal temperature rise at High power position for each model is as shown in table.**

TABLE (1L-1min.test)

| RATED OUTPUT | TEMPERATURE RISE |
|---|---|
| 1100W(IEC705-88) | Min. 16.9°F(9.4°C) |
| 1200W(IEC705-88) | Min. 18.5°F(10.3°C) |

# 12. PROCEDURE FOR MEASURING MICROWAVE ENERGY LEAKAGE

**WARNING**

**Check for radiation leakage after every servicing. Should the leakage be more than 2 mW/cm2 (1mW/cm2 for Canada) inform PASC, PSC, or PCI immediately. After repairing or replacing any radiation safety device, keep a written record for future reference, as required by D.H.H.S. and Health and Welfare Canada regulation. This requirement must be strictly observed. In addition, the leakage reading must be recorded on the service repair ticket while in the customer's home.**

**NOTE:**

**The U.S. Government standard is 5 mW/cm2 while in the customer's home. 2mW/cm2 stated here is our own voluntary standard. (1mW/cm2 for Canada)**

## 12.1. Equipment

- Electromagnatic radiation monitor
- Glass thermometer 212°F or 100°C
- 600cc glass beaker

## 12.2. Procedure for measuring radiation leakage

**Note before measuring.**

- Do not exceed meter full scale deflection. Leakage monitor should initially be set to the highest scale.
- To prevent false readings the test probe should be held by the grip portion of the handle only and moved along the shaded area in Figure no faster than 1 inch/sec (2.5cm/sec).
- Leakage with the outer panel removed ..... less than 5mW/cm2.
- Leakage for a fully assembled oven with door normally closed ..... less than 2mW/cm 2 (1mW/cm 2 for Canada).
- Leakage for a fully assembled oven [Before the latch switch (primary) is interrupted] while pulling the door ..... less than 2mW/cm 2.

1. **Pour 275 ± 15cc (9ozs± 1/2oz) of 20°C ± 5°C (68° ± 9°F) water in a beaker which is graduated to 600cc, and place in the center of the oven.**
2. **Set the radiation monitor to 2450MHz and use it following the manufacturer's recommended test procedure to assure correct results.**
3. **When measuring the leakage, always use the 2 inch (5cm) spacer supplied with the probe.**
4. **Tap the start pad or set the timer and with the magnetron oscillating, measure the leakage by holding the probe perpendicular to the surface being measured.**

### 12.2.1. Measurement with the outer panel removed.

**Whenever you replace the magnetron, measure for radiation leakage before the outer panel is installed and after all necessary components are replaced or adjusted. Special care should be taken in measuring around the magnetron.**

| WARNING |
| --- |
| Avoid contacting any high voltage parts. |

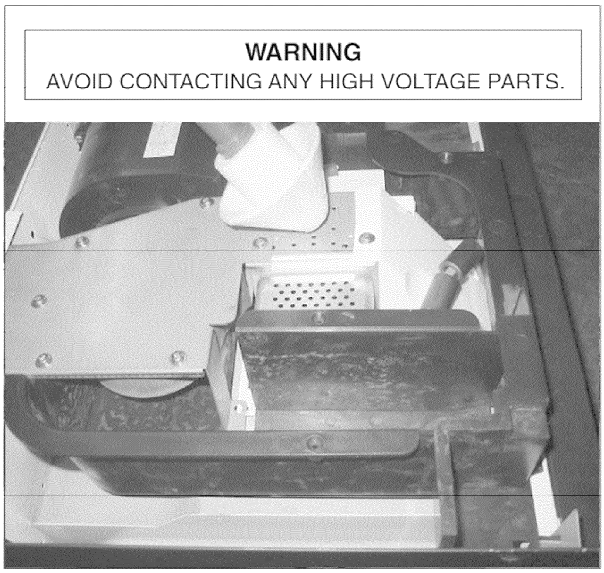
### 12.2.2. Measurements with a fully assembled oven.

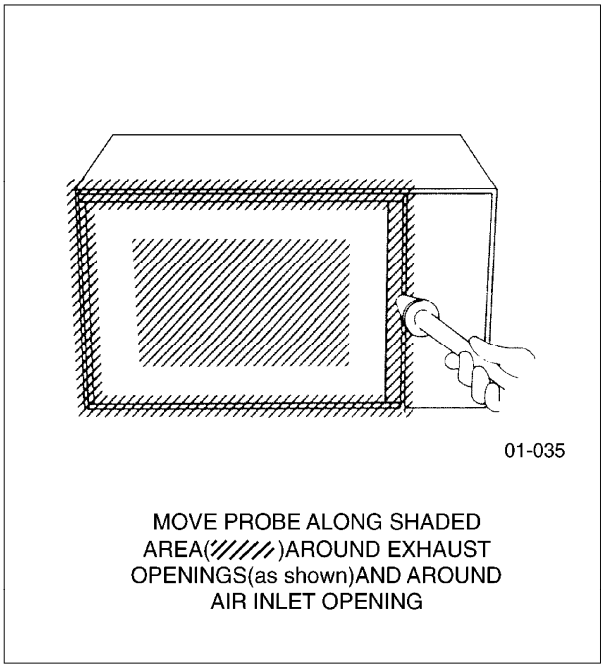
**After all components, including outer panel are fully assembled, measure for radiation leakage around the door periphery, the door viewing window, the exhaust opening and air inlet openings.**

## 12.3. Record keeping and notification after measurement

- **After any adjustment or repair to a microwave oven, a leakage reading must be taken. Record this leakage reading on the repair ticket even if it is zero.**
  **A copy of this repair ticket and the microwave leakage reading should be kept by repair facility.**
- **Should the radiation leakage be more than 2 mW/cm$^2$ (1mW/cm for Canada) after determining that all parts are in good condition, functioning properly, and genuine replacement parts as listed in this manual have been used, immediately notify PASC, PSC or PCI.**

## 12.4. At least once a year, have the radiation monitor checked for calibration by its manufacturer.




# 13. TROUBLESHOOTING GUIDE

**CAUTION**

1. **Check grounding before checking for trouble.**
2. **Be careful of high voltage circuit.**
3. **Discharge high voltage capacitor.**
4. **When checking the continuity of the switches or the high voltage transformer,disconnect one lead wir from these parts and then check continuity with the AC plug removed. To do otherwise may result in a false reading or damage to your meter. / When disconnecting a plastic connector from a terminal, you must hold the plastic connector instead of the lead wire and then disconnect it, otherwise lead wire m be damaged or the connector cannot be removed.**
5. **Do not touch any parts of the circuitry on the digital programmer circuit, since static electric discharg may damage this control panel. / Always touch yourself to ground while working on this panel to discharge any static charge in your body.**
6. **120V AC is present on the digital programmer circuit (Terminals of power relay's and primary circuit o low voltage transformer). When troubleshooting, be cautious of possible electrical shock hazard.**

**First of all operate the microwave oven following the correct operating procedures in order to find the exact cause of any trouble.**

| | SYMPTOM | CAUSE | CORRECTIONS |
|---|---|---|---|
| 1. | Oven is dead.<br>Fuse is OK.<br>No display and no operation at all. | 1. Open or loose lead wire harness<br>Open thermal cutout (Magnetron)<br>2. Open low voltage transformer<br>Defective DPC<br>3.<br><br>4. | Check fan motor when thermal cutout is defective. |
| 2. | No display and no operation at all. / Fuse is blown. | 1. Shorted lead wire harness<br>Defective primary latch switdh<br>2. (NOTE 1)<br>3. Defective short switch (NOTE 1)<br>4. Defective Inverter Power Supply (U)<br>Refer to component test procedure | Check adjustment of primary, secondary latch switch and sh switch including door.<br><br>Refer to Inverter PCB Troubleshooting. |
| | | NOTE 1:<br>All of these switches must be replaced at the same time.<br>Check continuity of power relay B (RY-1)'s contacts (between 1 and<br>and if it has continuity, replace power relay B (RY-1) also. | |
| 3. | Oven does not accept key input(Program) | 1. Key input is not insequence<br>Open or loose connection of<br>2. membrane key pad to DPC (Flat cable)<br>3. Shorted or open membrane key board<br>4. Defective DPC | Refer to operation procedure.<br><br>Refer to DPC troubleshooting. |
| 4. | Fan motor turn on when oven is plugged in with door closed. | 3. Misadjustment or loose wiring of secondary latch switch<br>4. Defective secondary latch switch | Adjust door and latch switches |

| | SYMPTOM | CAUSE | CORRECTIONS |
|---|---|---|---|
| 5. | Timer starts count down but no microwave oscillation. (No heat while oven lamp and fan motor turn on) | 1. Off-alignment of latch switches<br>2. Open or loose connection of high voltage circuit especially magnetron filament circuit<br>NOTE:<br>Large contact resistance will bring lower magnetron filament voltage and causing magnetron to lower output and/or be intermittent.<br>3. Defective high voltage component<br>H.V. Inverter Power Supply (u)<br>Magnetron<br>4. Open or loose wiring of power relay B (RY-1)<br>5. Defective primary latch switch<br>6. Defective DPC or power relay B (RY-1) | Adjust door and latch switches<br>Check high voltage componen according to component test procedure and replace if it is defective.<br>Refer to DPC troubleshooting |
| 6. | Oven can program but timer does not start countdown. | 1. Open or loose wiring of secondary latch switch<br>2. Off-alignment of secondary latch switch<br>3. Defective secondary latch switch | Adjust door and latch switches |
| 7. | Microwave output is low. Oven takes longer time to cook food. | 1. Decrease in power source voltage<br>2. Open or loose wiring of magnetron filament circuit.(Intermittent oscillation)<br>3. Aging change of magnetron | Consult electrician |
| 8. | Fan motor turns on and turntable rotates when door is opened. | 1. Shorted primary latch switch | |
| 9. | Oven does not operate and return to plugged in mode as soon as start pad is pressed. | 1. Defective DPC | Check tighten screws on escutcheon base bracket, D.P.C board. |
| 10. | Loud buzzing noise can be heard. | 1. Loose fan and fan motor | |
| 11. | Turntable motor does not rotate. | 1. Open or loose wiring of turntable motor<br>2. Defective turntable motor | |
| 12. | Oven stops operation during cooking. | 1. Open or loose wiring of primary and secondary latch switch<br>2. Operation of thermal cutout | Adjust door and latch switches |
| 13. | Oven returns to plugged in mode after 18 seconds elapses on the Auto sensor cooking mode. | 1. Open or loose wiring of sensor terminal from DPC<br>2. Open steam sensor<br>3. Defective DPC | |

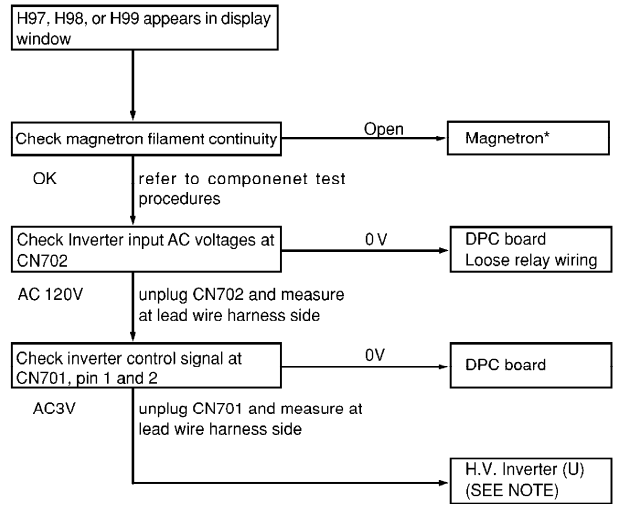
## 13.1. Trouble related to digital programmer circuit

| SYMPTOM | STEP | CHECK | RESULT | CAUSE/CORRECTIC |
|---|---|---|---|---|
| No display when oven is first plugged in. Oven is dead. | 1 | Fuse pattern of DPC | Normal | → STEP 2 |
| | | | Open (NOTE) | Shorted Circuit of ZNR,L.V.T., Oven Lamp etc.Replace D |
| | 2 | Low voltage transformer (LVT) secondary voltage | Abnormal 0V | LVT |
| | | | Normal | → Step 3 |
| | 3 | IC-1 pin 47 voltage | Abnormal | IC-10 |
| | | | Normal = 5V | IC-1, CX320, Displa |
| NOTE<br>Procedure of fuse pattern repairing is as follows:<br>1. When the fuse pattern (PF2) opens.<br>(1) Remove the jumper wire (PF1).<br>(2) Insert the removed jumper wire (PF1) to "(PF2)" position and solder it. If both "PF1" and "PF2" fuse patterns are open, please replace DPC.<br>2. When the fuse pattern (PF4) opens.<br>(1) Remove the jumper wire (PF3).<br>(2) Insert the removed jumper wire (PF3) to "(PF4)" position and solder it. If both "PF3" and "PF4" fuse patterns are open, please replace DPC.<br>NOTE:* At the time of these repairs, make visual inspection of the varistor for burning damage and examine the transformer with tester for the presence of layer short-circuit (check primary coil resistanc If any abnormal condition is detected, replace the defective parts. | | | | |
| No key input | 1 | Membrane switch continuity | Abnormal | Membrane switch |
| | | | Normal | IC-1 |
| No beep sound | 1 | IC-1 pin 8 voltage | Abnormal | IC-1 |
| | | | Normal | BUZZER, Q224 |
| Power relay A(RY-1) does not turn oneven though the program has been setand the start pad is tapped | 1 | IC-1 pin 41 voltage while operation | Abnormal | IC-1 |
| | | | Normal = 5V | → Step 2 |
| | 2 | Short circuit between pin 8 and pin13 of IC-220 | Still not turn on | RY-2 |
| | | | RY-2 turns on | IC-220 |
| No microwave oscillation at any powersetting | 1 | IC-1 pin 22 voltages while operation at high power | Abnormal | IC-1 |
| | | | Normal<br>22---5V | → Step 2 |
| | 2 | Q220 transistor | Abnormal | Q220 |
| | | | Normal | RY-1 |
| Dark or unclear display | 1 | Replace display and check operation | Normal | DISPLAY |
| | | | Abnormal | IC-1 |
| Missing or lighting of unnecessarysegment | 1 | Replace IC-1 and check operation | Normal | IC-1 |
| | | | Abnormal | DISPLAY |

| SYMPTOM | STEP | CHECK | RESULT | CAUSE/CORRECTIC |
|---|---|---|---|---|
| H97/H98 appears in window and ovenstops operation. Program High powerfor 1 minute and conduct following testquickly, unless H97/H98 appears andoven stops. [NEW H.V.] | 1 | Unplug CN702(2 pin) connector and measure voltage between terminals | 0V | 1. Latch Switch<br>2. DPC/Power Relay |
| | | | AC line voltage of 120V | → Step 2 |
| | 2 | Unplug CN701(3 pin) connector and measure pin 1 voltage | 0V | DPC |
| | | | Approx. AC 3V | Magnetron |

## 13.2. Troubleshooting of inverter circuit (U) and magnetron [NEW H.V.]

**This oven is programmed with a self diagnostics failure code system which will help for troubleshooting. H97, H98, and H99 are the provided failure codes to indicate magnetron and inverter circuit problem areas. This section explains failure codes of H97, H98, and H99. First, you must program the DPC by pressing [Clock] , [Timer] , [Start] , [Power Level] . Program unit for operation. H97, H98, H99 appears in display window a short time after start key is pressed and there is no microwave oscillation.**


H97, H98, or H99 appears in display window
Check magnetron filament continuity
Open
Magnetron*
OK
refer to componenet test procedures
Check Inverter input AC voltages at CN702
0 V
DPC board
Loose relay wiring
AC 120V
unplug CN702 and measure at lead wire harness side
Check inverter control signal at CN701, pin 1 and 2
0V
DPC board
AC3V
unplug CN701 and measure at lead wire harness side
H.V. Inverter (U) (SEE NOTE)

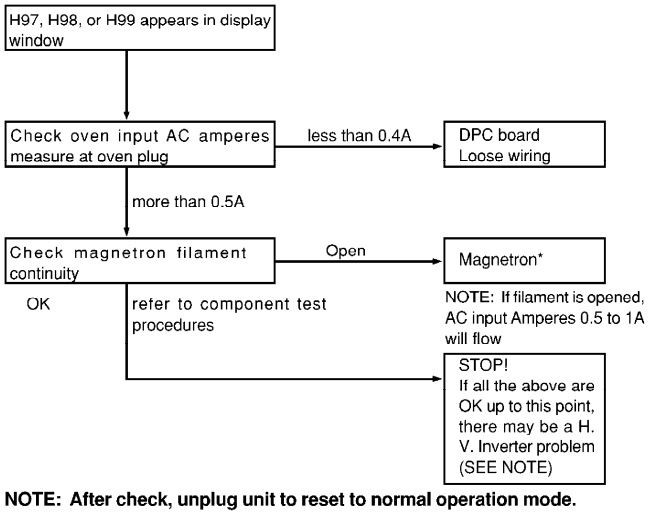
NOTE: DO NOT try to repair this Inverter Power Supply (U) and also DO NOT RE-ADJUST PRESET VOLUME on the board. It is very dangerous to repair or adjust without sufficient test equipment because this circuit handles very high voltage and very large current. Off alignment of inverter board operation is dangerous. Operating a misaligned Inverter circuit is dangerous due to the very high voltage and current that is produced by this board. Defective boards must be replaced with a new one.

* Check magnetron filament for open or short to casing before proceeding to determine a good magnetron.

**NOTE: After check, unplug unit to reset to normal operation mode.**

**Alternate way to troubleshoot oven with AC Ampere meter used**

**H97, H98, H99 appears in display window a short time after start key is pressed and no microwave oscillation with AC Ampere meter used for troubleshooting**


H97, H98, or H99 appears in display window
Check oven input AC amperes measure at oven plug
less than 0.4A
DPC board
Loose wiring
more than 0.5A
Check magnetron filament continuity
Open
Magnetron*
OK
refer to component test procedures
NOTE: If filament is opened, AC input Amperes 0.5 to 1A will flow
STOP!
If all the above are OK up to this point, there may be a H. V. Inverter problem (SEE NOTE)

NOTE: DO NOT try to repair this Inverter Power Supply (U) and also DO NOT

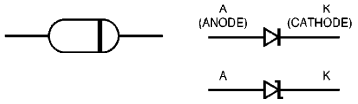
RE-ADJUST PRESET VOLUME on the board. It is very dangerous to repair or adjust without sufficient test equipment because this circuit handles very high voltage and very large current. Off alignment of inverter board operation is dangerous. Operating a misaligned Inverter circuit is dangerous due to the very high voltage and current that is produced by this board. Defective boards must be replaced with a new one.

* Check magnetron filament for open or short to casing before proceeding to determine a good magnetron.

**NOTE: After check, unplug unit to reset to normal operation mode.**

## 13.3. How to check the semiconductors using an OHM meter

**Diode**



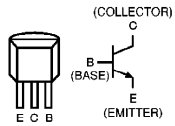

| | FORWARD | REVERSE |
|---|---|---|
| A-K | SMALL | ∞ |

**Transistor**

**NPN Transistor**

**2SC·····**

**2SD·····**

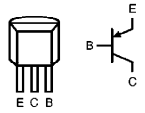



| | FORWARD | REVERSE |
|---|---|---|
| B-E | SMALL | ∞ |
| B-C | SMALL | ∞ |
| C-E | ∞ | ∞ |

**PNP Transistor**

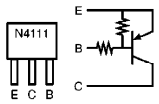
**2SA·····**

**2SB·····**



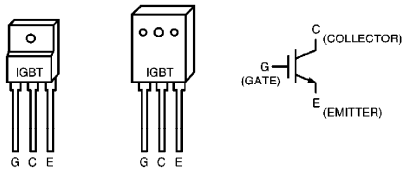

| | FORWARD | REVERSE |
|---|---|---|
| B-E | SMALL | ∞ |
| C-B | SMALL | ∞ |
| C-E | ∞ | ∞ |

**Digital Transistor**
**PNP Transistor**



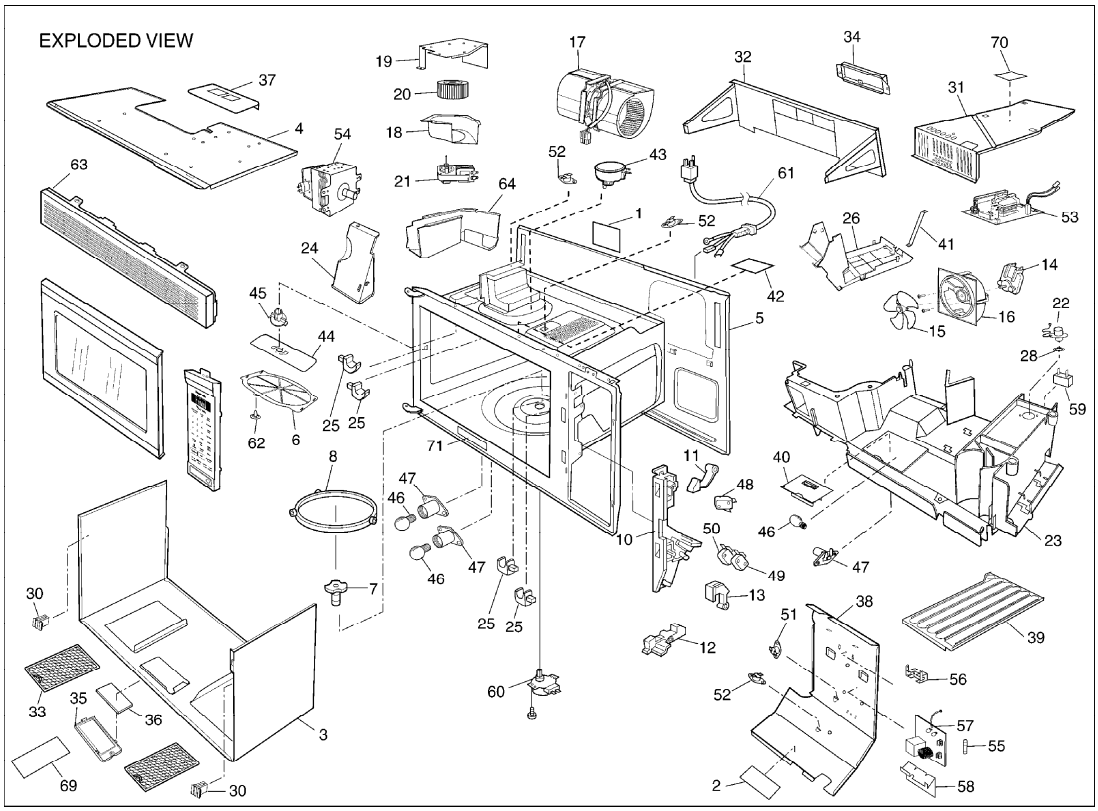

| | FORWARD | REVERSE |
|---|---|---|
| E-B | 10kΩ ~ 30kΩ | 10kΩ ~ 30kΩ |
| C-B | 50kΩ ~ 90kΩ | ∞ |
| C-E | 40kΩ ~ 80kΩ | ∞ |

**IGBT**
**(INSULATED GATE BIPOLAR TRANSISTOR)**




| | FORWARD | REVERSE |
|---|---|---|
| E-C | SMALL | ∞ |
| E-G | ∞ | ∞ |
| C-G | ∞ | ∞ |

# 14. EXPLODED VIEW AND PARTS LIST



# 15. PARTS LIST

**NOTE:**

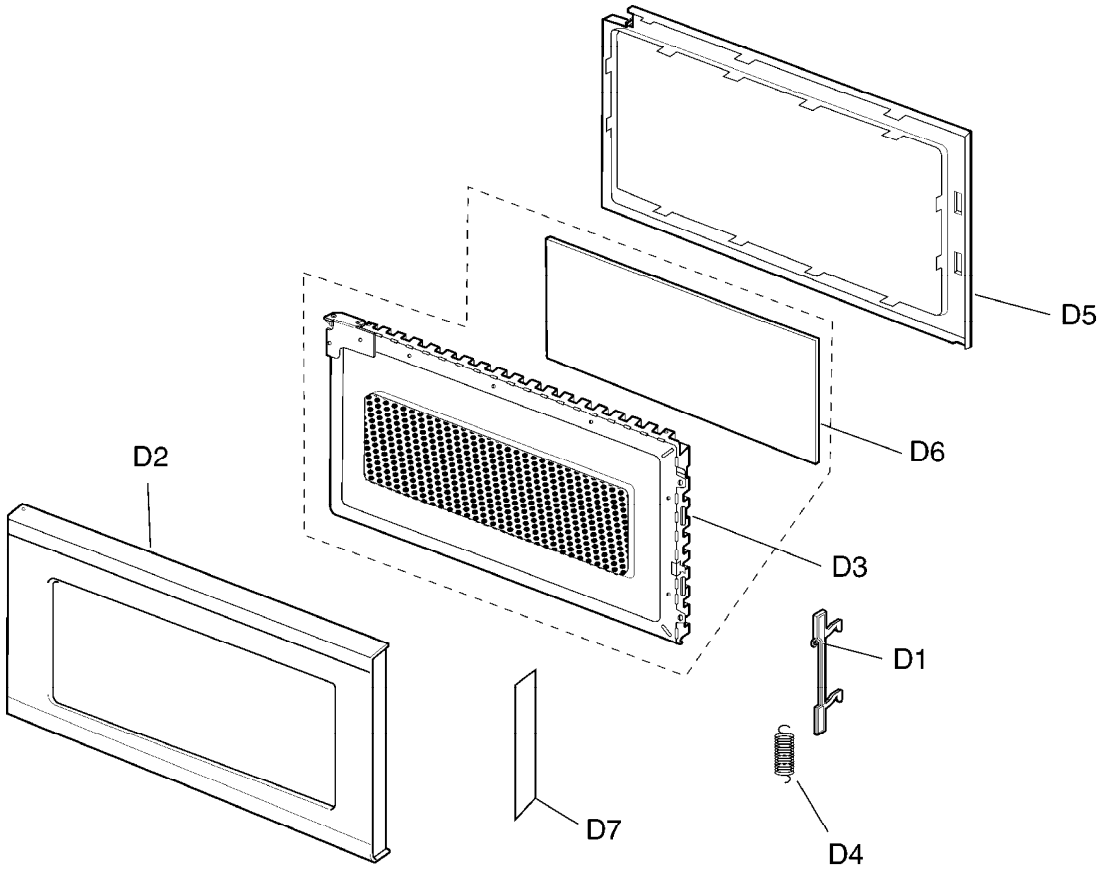
1. **When ordering replacement part(s), please use part number(s) shown in this part list.**
   **Do not use description of the part.**
2. **Important safety notice:**
   **Components identified by ⚠ mark have special characteristics important for safety.**
   **When replacing any of these components, use only manufacture's specified parts.**

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| 1 | | F00205H00AP | CAUTION LABEL | 1 | APH |
| 1 | | F00067600CP | CAUTION LABEL | 1 | CPH |
| 2 | | F00335H00AP | FUSE LABEL | 1 | |
| 3 | | F110D5H00SAP | CABINET BODY (U) | 1 | S262SF |
| 3 | | F110D5H10BAP | CABINET BODY (U) | 1 | S262BF, S252BF |
| 3 | | F110D5H10HAP | CABINET BODY (U) | 1 | S262WF, S252WF |
| 4 | | F100D5H00AP | BASE PLATE (U) | 1 | |
| 5 | ⚠ | F201A5H00AP | OVEN (U) | 1 | S262SF/BF/WF |
| 5 | ⚠ | F201A5H20AP | OVEN (U) | 1 | S252BF/WF |
| | | | | | |
| 6 | | F20115H00AP | COVER | 1 | |
| 7 | | F21314W00AP | PULLY SHAFT | 1 | |
| 8 | | J290D-4N30BP | ROLLER RING (U) | 1 | |
| 10 | ⚠ | E3020-8000BP | DOOR HOOK | 1 | |
| | | | | | |
| 11 | | E3136-8000BP | HOOK LEVER A | 1 | |
| 12 | | E31374830AP | HOOK LEVER B | 1 | |
| 13 | | E31384830AP | HOOK LEVER C | 1 | |
| 14 | | F40015H00AP | FAN MOTOR A | 1 | FOR INVERTER (U) COOLING |
| 15 | | F40085H00AP | FAN BLADE | 1 | FOR INVERTER (U) COOLING |
| | | | | | |
| 16 | | F40255H00AP | ORIFICE | 1 | |
| 17 | | F401W5H00AP | BLOWER MOTOR (U) | 1 | |
| 18 | | F42485H00AP | FAN CASE C | 1 | |
| 19 | | F41585H00AP | FAN CASE INSTALLATION PLATE | 1 | |
| 20 | | F42505H00AP | SIROCCO FAN C | 1 | |
| | | | | | |
| 21 | | F42675H00AP | FAN MOTOR B | 1 | FOR MAGNETRON COOLING |
| 22 | | F601L5H00AP | SENSOR (BU) | 1 | S262SF/BF/WF |
| 23 | | F40245H00AP | EXHAUST GUIDE A | 1 | |
| 24 | | F44775H00AP | EXHAUST GUIDE | 1 | |
| 25 | | F20025H00AP | RACK SUPPORT | 4 | S262SF/BF/WF |
| | | | | | |
| 26 | | F65855H00AP | INVERTER BRACKET | 1 | |
| 28 | | F62385H00AP | WASHER | 1 | S262SF/BF/WF |
| 30 | | F201H5H00AP | MAGNET CASE (U) | 2 | |
| | | | | | |
| 31 | | F16035H00AP | TOP FRONT COVER | 1 | |

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| 32 | | F100T5H00AP | BACK PLATE B (U) | 1 | |
| 33 | | F400B5H00AP | FILTER (U) | 2 | |
| 34 | | F400K5H00AP | EXHAUST ADAPTER | 1 | |
| 35 | | F63175H00SAP | GLASS PLATE HOLDER | 1 | S262SF |
| 35 | | F63175H10BAP | GLASS PLATE HOLDER | 1 | S262BF, S252BF |
| 35 | | F63175H10HAP | GLASS PLATE HOLDER | 1 | S262WF, S252WF |
| | | | | | |
| 36 | | F64375H00AP | GLASS PLATE | 1 | |
| 37 | | F41575H00AP | FAN INSTALLATION PLATE | 1 | |
| 38 | | F42175H00AP | COVER PLATE | 1 | |
| 39 | | F42205H00AP | COVER PLATE B | 1 | |
| 40 | | F607V5H00AP | LAMP COVER (U) | 1 | |
| | | | | | |
| 41 | | F61845H00AP | GROUNDING PLATE | 1 | |
| 42 | | F60405H00AP | LAMP MEMBRANE | 1 | |
| 43 | | F61445H00AP | STIRRER MOTOR | 1 | |
| 44 | | F20155H00AP | STIRRER | 1 | |
| 45 | | F20165H00AP | ANTENNA SUPPORT | 1 | |
| | | | | | |
| 46 | | F60305H00AP | INCANDESCENT LAMP | 3 | |
| 47 | | F61525H00AP | SOCKET | 3 | |
| 48 | ⚠ | A6142-F60 | MICROSWITCH | 1 | (PRIMARY LATCH SWITCH) (V-15G-3C26) |
| 49 | ⚠ | A61425180AP | MICROSWITCH | 1 | (SECONDARY LATCH SWITCH) (L-3C2-2) |
| 50 | ⚠ | A61785180AP | MICROSWITCH | 1 | (SHORT SWITCH) (L-2C2-2) |
| | | | | | |
| 51 | | F61455H00AP | THERMAL CUTOUT | 1 | |
| 52 | | F61455E60XN | THERMAL CUTOUT | 3 | |
| 53 | ⚠ | A606Y4T00AP | H.V.INVERTER (U) | 1 | APH |
| 53 | ⚠ | A606Y4T00CP | H.V.INVERTER (U) | 1 | CPH |
| 54 | ⚠ | 2M261-M32F | MAGNETRON | 1 | APH |
| 54 | ⚠ | 2M261-M32G | MAGNETRON | 1 | CPH |
| 55 | ⚠ | B62308250AP | FUSE | 1 | 18A/125V |
| | | | | | |
| 56 | | B62314000AP | FUSE HOLDER | 1 | APH |
| 57 | | J692Y4T00CP | NOISE FILTER (U) | 1 | CPH |
| 58 | | F82605H00AP | NOISE FILTER BRACKET | 1 | CPH |
| 59 | | F66985H00AP | MOTOR CAPACITOR | 1 | |
| 60 | | F63264080AP | TURNTABLE MOTOR | 1 | |
| | | | | | |
| 61 | ⚠ | F900C5H00AP | AC CORD W/PLUG | 1 | APH |
| 61 | ⚠ | F900C5H00CP | AC CORD W/PLUG | 1 | CPH |
| 62 | | F90804W00AP | CANOE CLIP | 1 | FOR COVER |
| 63 | | F101V5H00AP | VENT GRILLE (U) | 1 | S262SF |
| 63 | | F101V5H10BAP | VENT GRILLE (U) | 1 | S262BF, S252BF |
| 63 | | F101V5H10HAP | VENT GRILLE (U) | 1 | S262WF, S252WF |
| 64 | | F48435H00AP | INHALE GUIDE A | 1 | |
| | | | | | |
| 69 | | F01725H00AP | CAUTION LABEL | 1 | |
| 70 | | F00565H00AP | CAUTION LABEL | 1 | |
| | | | | | |
| 71 | | F03345H10AP | MENU LABEL | 1 | S262SF/BF/WF APH |
| 71 | | F03345H20AP | MENU LABEL | 1 | S252BF/WF APH |
| 71 | | F03345H10CP | MENU LABEL | 1 | S262SF/BF/WF CPH |

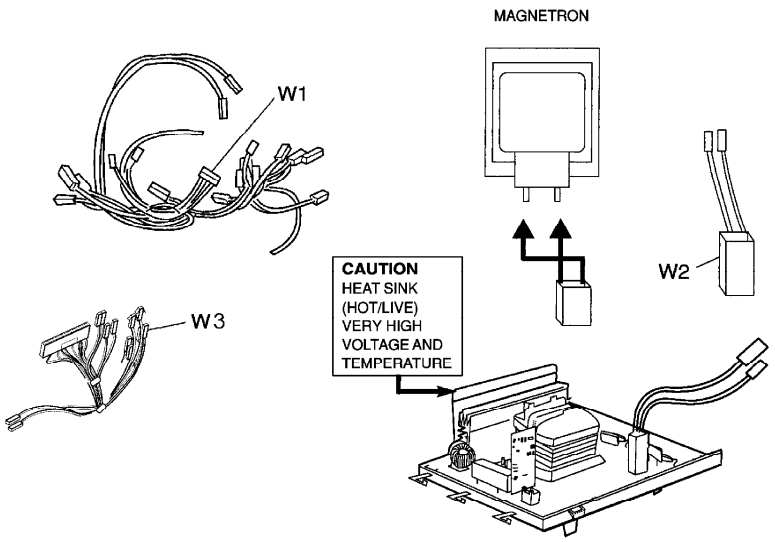
| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| 71 | | F03345H20CP | MENU LABEL | 1 | S252BF/WF CPH |

# 16. DOOR ASSEMBLY



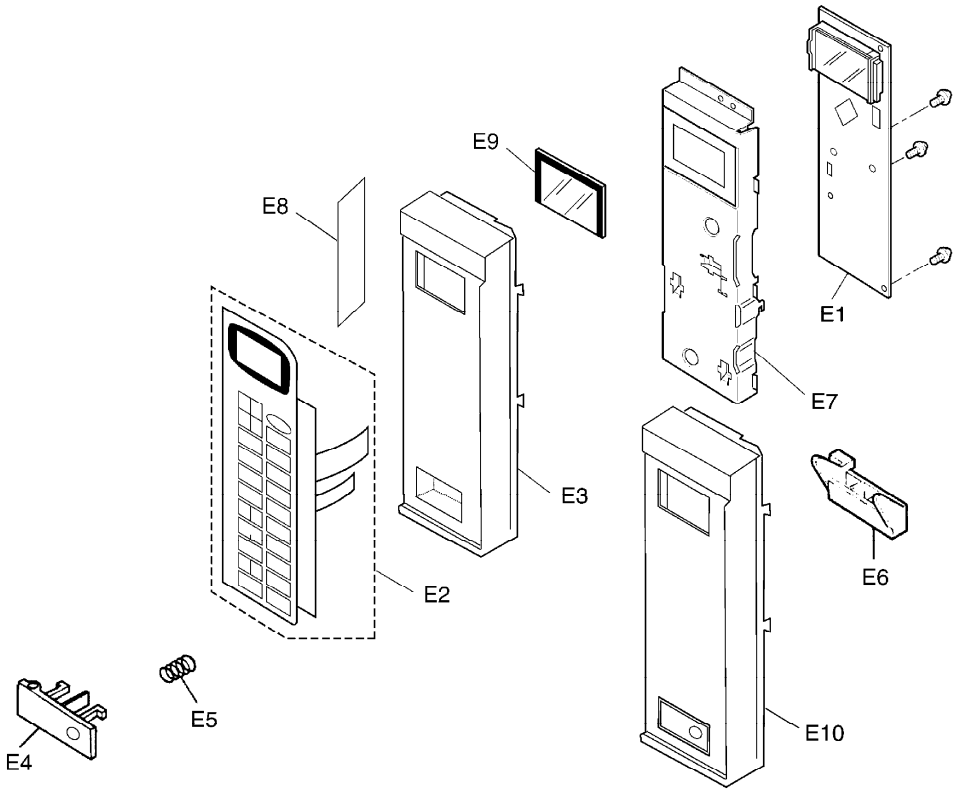

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| D1 | | F3018-1200 | DOOR KEY A | 1 | |
| D2 | ⚠ | F302A5H00AP | DOOR A (U) | 1 | S262SF |
| D2 | ⚠ | F302A5H00BAP | DOOR A (U) | 1 | S262BF, S252BF |
| D2 | ⚠ | F302A5H00HAP | DOOR A (U) | 1 | S262WF, S252WF |
| D3 | ⚠ | F302K5H00AP | DOOR E (U) | 1 | |
| D4 | | F30214000AP | DOOR KEY SPRING | 1 | |
| D5 | ⚠ | F30855H00AP | DOOR C | 1 | |
| | | | | | |
| D6 | ⚠ | F31455H00AP | DOOR SCREEN A | 1 | |
| D7 | | F02459660AP | DHHS LABEL | 1 | APH |
| D7 | | F04114180CP | DHHS LABEL | 1 | CPH |

# 17. WIRING MATERIALS



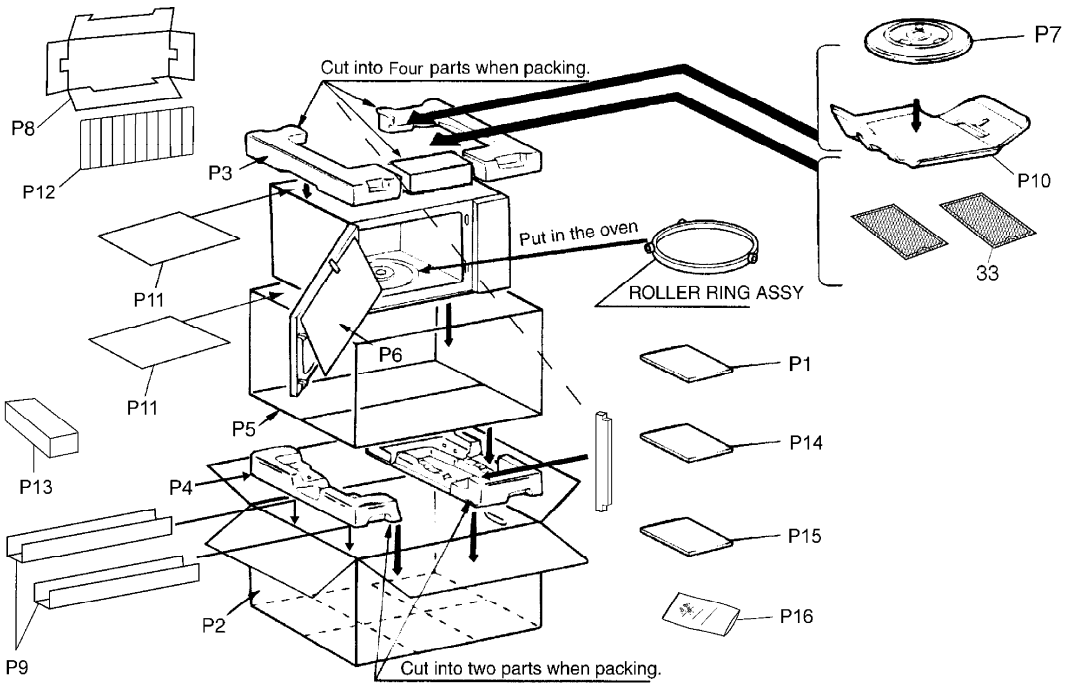

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| W1 | | F030A5H00AP | LEAD WIRE HARNESS | 1 | APH |
| W1 | | F030A5H00CP | LEAD WIRE HARNESS | 1 | CPH |
| W2 | | F030E5H00AP | H.V.LEAD WIRE | 1 | APH |
| W2 | | F030E5H00CP | H.V.LEAD WIRE | 1 | CPH |
| W3 | | F03535H00AP | LEAD WIRE HARNESS U | 1 | |

# 18. ESCUTCHEON BASE ASSEMBLY



| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| E1 | | F603L5H00AP | D.P.CIRCUIT | 1 | S262SF APH, S262BF/WF APH |
| E1 | | F603L5H20AP | D.P.CIRCUIT | 1 | S252BF/WF APH |
| E1 | | F603L5H00CP | D.P.CIRCUIT | 1 | S262SF CPH, S262BF/WF CPH |
| E1 | | F603L5H20CP | D.P.CIRCUIT | 1 | S252BF/WF CPH |
| E2 | | F630Y5H10BAP | MEMBRANE SWITCH (U) | 1 | S262SF/BF APH |
| E2 | | F630Y5H10HAP | MEMBRANE SWITCH (U) | 1 | S262WF APH |
| E2 | | F630Y5H20BAP | MEMBRANE SWITCH (U) | 1 | S252BF APH |
| E2 | | F630Y5H20HAP | MEMBRANE SWITCH (U) | 1 | S252WF APH |
| E2 | | F630Y5H10BCP | MEMBRANE SWITCH (U) | 1 | S262SF/BF CPH |
| E2 | | F630Y5H10HCP | MEMBRANE SWITCH (U) | 1 | S262WF CPH |
| E2 | | F630Y5H20BCP | MEMBRANE SWITCH (U) | 1 | S252BF CPH |
| E2 | | F630Y5H20HCP | MEMBRANE SWITCH (U) | 1 | S252WF CPH |
| E3 | | F80345H10BAP | ESCUTCHEON BASE | 1 | S262BF, S252BF |
| E3 | | F80345H10HAP | ESCUTCHEON BASE | 1 | S262WF, S252WF |
| E4 | | F80725H10BAP | DOOR OPENING BUTTON | 1 | S262BF, S252BF |
| E4 | | F80725H10HAP | DOOR OPENING BUTTON | 1 | S262WF, S252WF |
| E5 | | F80375950AP | OPENING BUTTON SPRING | 1 | |
| | | | | | |
| E6 | | F82565H00AP | DOOR OPENING LEVEL | 1 | |
| E7 | | F81275H00AP | BACK PLATE | 1 | |
| E8 | | F00075H00AP | NAME PLATE | 1 | S262SF APH |
| E8 | | F00075H10BAP | NAME PLATE | 1 | S262BF APH |
| E8 | | F00075H10HAP | NAME PLATE | 1 | S262WF APH |
| E8 | | F00075H20BAP | NAME PLATE | 1 | S252BF APH |
| E8 | | F00075H20HAP | NAME PLATE | 1 | S252WF APH |
| E8 | | F00075H00CP | NAME PLATE | 1 | S262SF CPH |
| E8 | | F00075H10BCP | NAME PLATE | 1 | S262BF CPH |
| E8 | | F00075H10HCP | NAME PLATE | 1 | S262WF CPH |
| E8 | | F00075H20BCP | NAME PLATE | 1 | S252BF CPH |
| E8 | | F00075H20HCP | NAME PLATE | 1 | S252WF CPH |
| E9 | | F80025H00AP | ESCUTCHEON B | 1 | |
| E10 | | F800L5H00AP | ESCUTCHEON BASE (U) | 1 | S262SF |

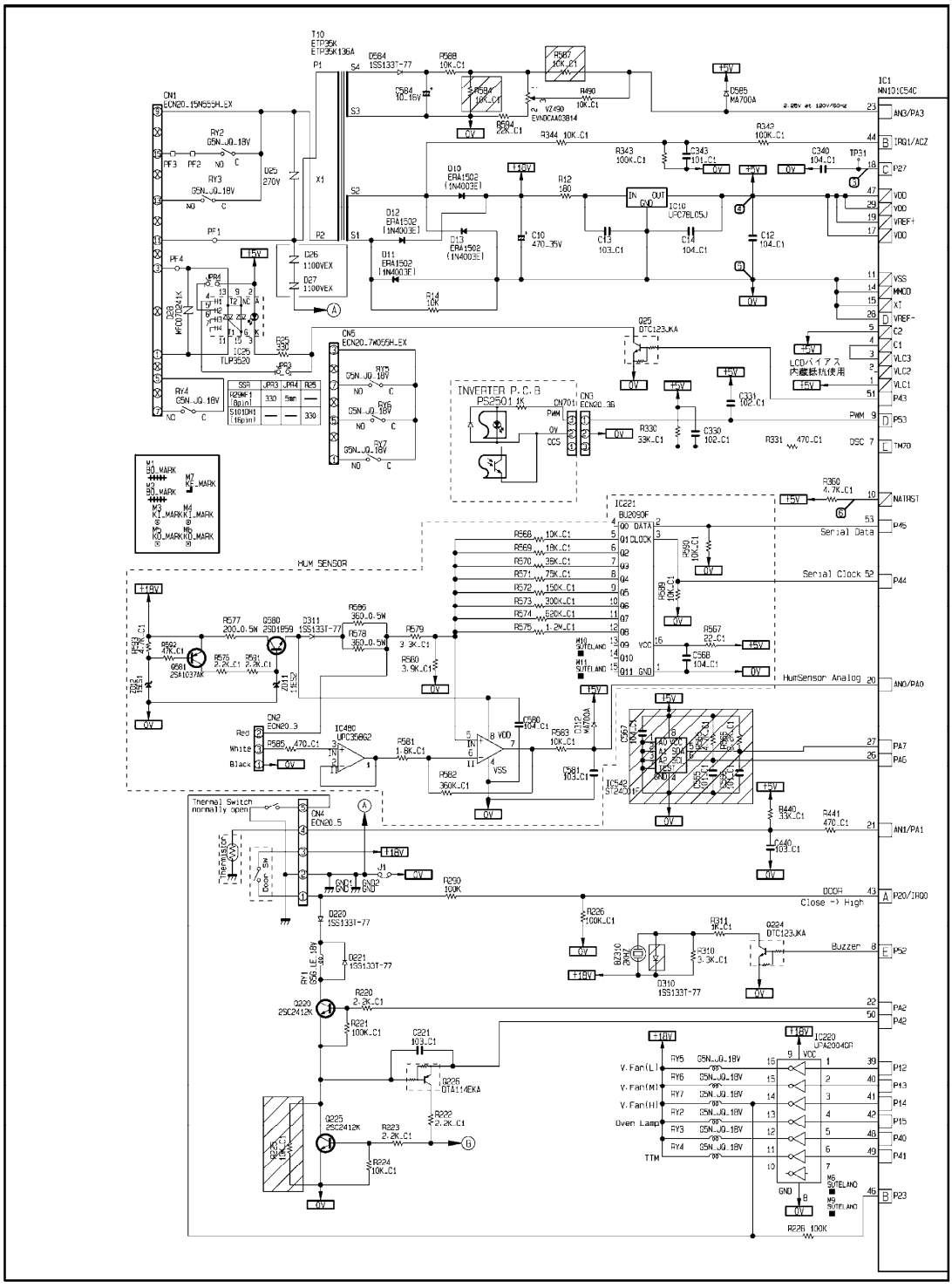
# 19. PACKING AND ACCESORIES

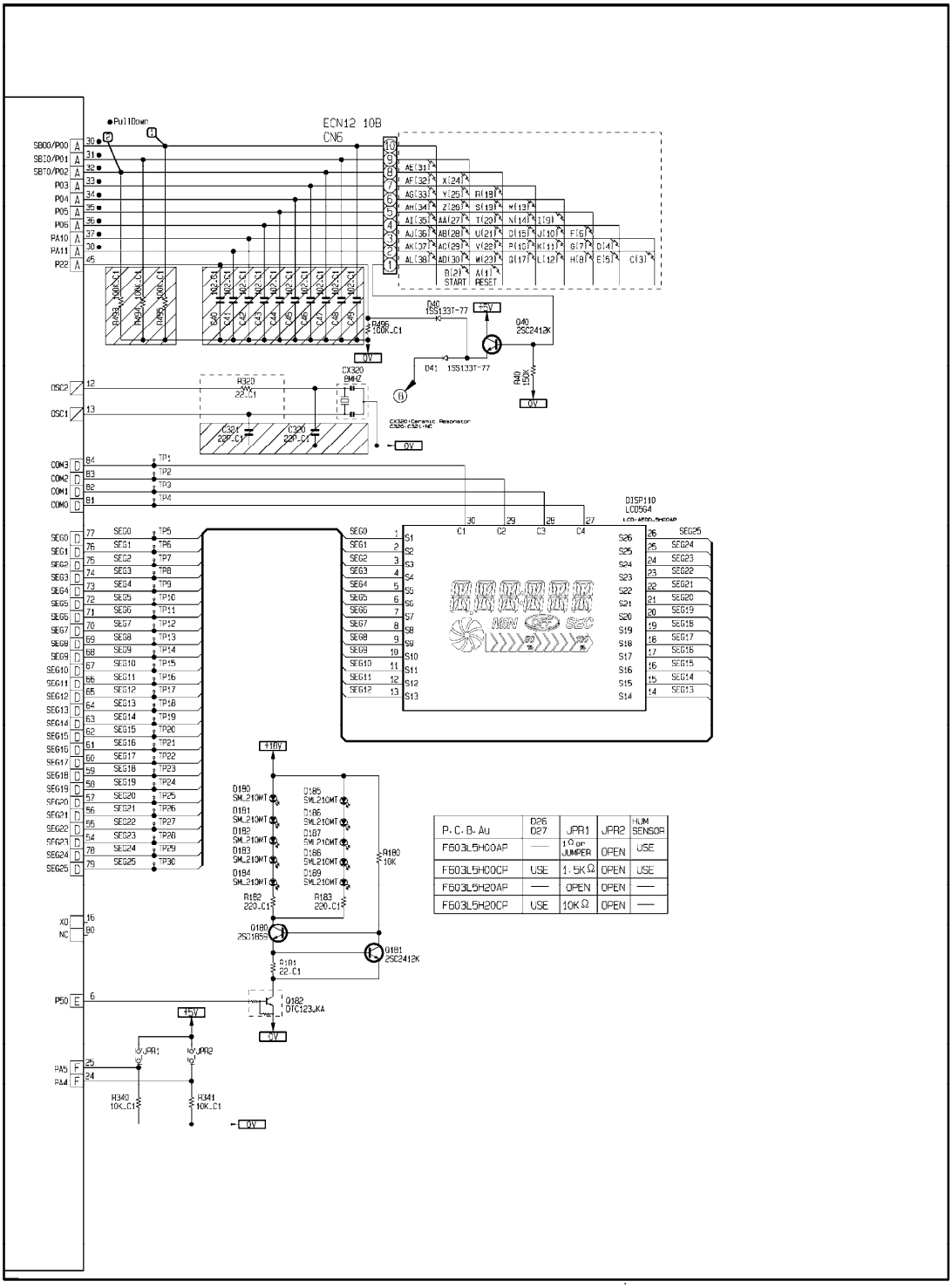



| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| P1 | | F00035H00AP | INSTRUCTION MANUAL | 1 | APH |
| P1 | | F00035H00CP | INSTRUCTION MANUAL | 1 | CPH |
| P2 | | F01025H00AP | PACKING CASE PAPER | 1 | S262SF APH |
| P2 | | F01025H10BAP | PACKING CASE PAPER | 1 | S262BF APH |
| P2 | | F01025H10HAP | PACKING CASE PAPER | 1 | S262WF APH |
| P2 | | F01025H20BAP | PACKING CASE PAPER | 1 | S252BF APH |
| P2 | | F01025H20HAP | PACKING CASE PAPER | 1 | S252WF APH |
| P2 | | F01025H00CP | PACKING CASE PAPER | 1 | S262SF CPH |
| P2 | | F01025H10BCP | PACKING CASE PAPER | 1 | S262BF CPH |
| P2 | | F01025H10HCP | PACKING CASE PAPER | 1 | S262WF CPH |
| P2 | | F01025H20BCP | PACKING CASE PAPER | 1 | S252BF CPH |
| P2 | | F01025H20HCP | PACKING CASE PAPER | 1 | S252WF CPH |
| P3 | | F01045H00AP | UPPER FILLER | 1 | |
| P4 | | F01055H00AP | LOWER FILLER | 1 | |
| P5 | | F01065H00AP | P.E.BAG | 1 | |
| | | | | | |
| P6 | | F01075H00AP | DOOR SHEET | 1 | |
| P7 | | A06015H00AP | COOKING TRAY | 1 | |
| P8 | | F01175H00AP | TRAY PACKING B | 1 | S262SF/BF/WF |
| P9 | | F01485H00AP | REINFORCE BRACKET | 2 | |
| P10 | | F01085H00AP | TRAY PACKING | 1 | |
| | | | | | |
| P11 | | F01925H00AP | SHEET | 2 | |
| P12 | | F06025H00AP | OVEN RACK | 1 | S262SF/BF/WF |
| P13 | | F02185H00AP | PROTECTOR PACKING | 1 | |
| P14 | | F03135H00AP | INSTALLATION INSTRUCTION | 1 | |
| P15 | | F04315H00AP | UPPER-CABINET TEMPLATE | 1 | APH |
| P15 | | F04315H00CP | UPPER-CABINET TEMPLATE | 1 | CPH |
| | | | | | |
| P16 | | F011F5H00AP | ATTACHMENT | 1 | |
| 33 | | F400B5H00AP | FILTER (U) | 2 | |

# 20. DIGITAL PROGRAMMER CIRCUIT

## SCHEMATIC DIAGRAM






# 21. DIGITAL PROGRAMMER CIRCUIT

**PARTS LIST**

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| BZ310 | | AEFBTFM571 | BUZZER | 1 | 2.0KHz |
| C221, C440, C13 | | AECUU06F103Z | CHIP CAPACITOR | 3 | 0.01 μ F/50V |
| C582 | | AECUU06F103Z | CHIP CAPACITOR | 1 | 0.01 μ F/50V (S262SF/BF/WF) |
| C343 | | AECUU06C101J | CHIP CAPACITOR | 1 | 100PF/50V |
| C12, C14, C340 | | AECUT06F104Z | CHIP CAPACITOR | 3 | 0.1 μ F/25V |
| C568, C580, C583 | | AECUT06F104Z | CHIP CAPACITOR | 3 | 0.1 μ F/25V (S262SF/BF/WF) |
| C330, C331 | | AECUU06R102K | CHIP CAPACITOR | 2 | 1000PF/50V |
| C10 | | AECETK1V102B | AL CHEM CAPACITOR | 1 | 100 μ F/35V (S262SF/BF/WF) |
| C10 | | AECETK1V471B | AL CHEM CAPACITOR | 1 | 470 μ F/35V (S252BF/WF) |
| C584 | | AECETS1C100B | AL CHEM CAPACITOR | 1 | 10 μ F/16V |
| C25 | | ECQE2A104MWA | CAPACITOR | 1 | 0.1 μ F/250V (APH) |
| CN1 | | AEEMXH55515W | CONNECTOR | 1 | 15 Pin |
| CN2 | | AEEMXH00703W | CONNECTOR | 1 | 3 Pin (S262SF/BF/WF) |
| CN3 | | AEEMXH00703B | CONNECTOR | 1 | 3 Pin |
| CN4 | | AEEMXH01H05W | CONNECTOR | 1 | 5 Pin |
| CN5 | | AEEMXH05507W | CONNECTOR | 1 | 7 Pin |
| CN6 | | AEEM10FDZBTM | CONNECTOR | 1 | 10 Pin |
| | | F66175E40XN | LCD HOLDER | 1 | |
| | | F67525E40XN | DIFFUSION SHEET | 1 | |
| DISP110 | | AEDDHJ5H00AP | LCD | 1 | |
| CX320 | | AEFOS800MG06 | CERAMIC RESONATOR | 1 | 8.0MHz |
| D10, D11, D12, D13 | | AEDNERA1502 | DIODE | 4 | |
| D40, D41, D220, D221, D584 | | AESS133T-77 | DIODE | 5 | |
| D585 | | AEDNRB721Q | DIODE | 1 | |
| D312 | | AEDNRB721Q | DIODE | 1 | (S262SF/BF/WF) |
| D25 | | AERZ271KD10A | VARISTOR | 1 | |
| D26, D27 | | AERZ102KD10A | VARISTOR | 2 | (CPH) |
| D28 | | AERZ241KD07A | ZENER DIODE | 1 | |
| D180, D181, D182, D183, D184, D185, D186, D187, D188, D189 | | AESQSML210MT | CHIP-LED | 10 | |
| IC1 | | MN101C54CDW | L.S.I | 1 | |
| IC220 | | AEICU2004GR | IC | 1 | |
| IC480 | | AEICUPC358G2 | IC | 1 | (S262SF/BF/WF) |
| IC25 | | AEICR29MF1 | IC | 1 | |
| IC10 | | AEIC78L05J-T | IC | 1 | |
| IC221 | | AEICBU2090F | IC | 1 | (S262SF/BF/WF) |
| IC500 | | AEIC78M15AFH | IC | 1 | (S262SF/BF/WF) |
| Q226 | | AESA14EKE | CHIP DIDI-TRANSISTOR | 1 | |
| Q25, Q182, Q224 | | AESC23JKE | CHIP DIDI-TRANSISTOR | 3 | |
| Q180 | | 2SD1859TV2Q | TRANSISTOR | 1 | |
| Q581 | | 2SA1037AK | TRANSISTOR | 1 | (S262SF/BF/WF) |
| Q40, Q181, Q220, Q225 | | 2SC2412KT146 | CHIP TRANSISTOR | 4 | |
| R311 | | AERJ06J102R | CHIP RESISTOR | 1 | 1K Ω , 1/16W, 5% |
| R224, R340, R341, R344, R490, R588 | | AERJ06J103R | CHIP RESISTOR | 6 | 10K, 1/16W, 5% |
| R568, R583, R589, R590 | | AERJ06J103R | CHIP RESISTOR | 4 | 10K, 1/16W, 5% (S262SF/BF/WF) |
| R221, R226, R342, R343, R496 | | AERJ06J104R | CHIP RESISTOR | 5 | 100K, 1/16W, 5% |
| R575 | | AERJ06J125R | CHIP RESISTOR | 1 | 1.2M, 1/16W, 5% (S262SF/BF/WF) |
| R572 | | AERJ06J154R | CHIP RESISTOR | 1 | 150K, 1/16W, 5% (S262SF/BF/WF) |
| R581 | | AERJ06J182R | CHIP RESISTOR | 1 | 1.8K, 1/16W, 5% (S262SF/BF/WF) |
| R569 | | AERJ06J183R | CHIP RESISTOR | 1 | 18K, 1/16W, 5% (S262SF/BF/WF) |
| R181, R320 | | AERJ06J220R | CHIP RESISTOR | 2 | 22 Ω , 1/16W, 5% |
| R567 | | AERJ06J220R | CHIP RESISTOR | 1 | 22 Ω , 1/16W, 5% (S262SF/BF/WF) |

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| R182, R183 | | AERJ06J221R | CHIP RESISTOR | 2 | 220 Ω, 1/16W, 5% |
| R220, R222, R223 | | AERJ06J222R | CHIP RESISTOR | 3 | 2.2K, 1/16W, 5% |
| R594 | | AERJ06J223R | CHIP RESISTOR | 1 | 22K, 1/16W, 5% |
| R573 | | AERJ06J304R | CHIP RESISTOR | 1 | 300K, 1/16W, 5% (S262SF/BF/WF) |
| R310 | | AERJ06J332R | CHIP RESISTOR | 1 | 3.3K, 1/16W, 5% |
| R579 | | AERJ06J332R | CHIP RESISTOR | 1 | 3.3K, 1/16W, 5% (S262SF/BF/WF) |
| R330, R440 | | AERJ06J333R | CHIP RESISTOR | 2 | 33K, 1/16W, 5% |
| R570 | | AERJ06J363R | CHIP RESISTOR | 1 | 36K, 1/16W, 5% (S262SF/BF/WF) |
| R582 | | AERJ06J364R | CHIP RESISTOR | 1 | 360K, 1/16W, 5% (S262SF/BF/WF) |
| R580 | | AERJ06J392R | CHIP RESISTOR | 1 | 3.9K, 1/16W, 5% (S262SF/BF/WF) |
| R331, R441 | | AERJ06J471R | CHIP RESISTOR | 2 | 470 Ω, 1/16W, 5% |
| R585 | | AERJ06J471R | CHIP RESISTOR | 1 | 470 Ω, 1/16W, 5% (S262SF/BF/WF) |
| R360 | | AERJ06J472R | CHIP RESISTOR | 1 | 4.7K, 1/16W, 5% |
| R593 | | AERJ06J472R | CHIP RESISTOR | 1 | 4.7K, 1/16W, 5% (S262SF/BF/WF) |
| R592 | | AERJ06J473R | CHIP RESISTOR | 1 | 47K, 1/16W, 5% |
| R574 | | AERJ06J624R | CHIP RESISTOR | 1 | 620K, 1/16W, 5% (S262SF/BF/WF) |
| R571 | | AERJ06J753R | CHIP RESISTOR | 1 | 75K, 1/16W, 5% (S262SF/BF/WF) |
| R14, R180 | | AERDY2TJ103T | CARBON FILM RESISTOR | 2 | 10K, 1/4W, 5% |
| R228, R290 | | AERDY2TJ104T | CARBON FILM RESISTOR | 2 | 100K, 1/4W, 5% |
| R40 | | AERDY2TJ154T | CARBON FILM RESISTOR | 1 | 150K, 1/4W, 5% |
| R12 | | AERDY2TJ331T | CARBON FILM RESISTOR | 1 | 330 Ω, 1/4W, 5% |
| R576, R577, R578, R586 | | AEROY2F3300T | RESISTOR | 4 | 330 Ω, 1/4W, 5% |
| VZ490 | | AEVTZ6TLT103 | VARIABLE RESISTOR | 1 | 10K Ω VR |
| RY1 | | AEGG5G1A18 | POWER RELAY | 1 | |
| RY2, RY3, RY4, RY5, RY6, RY7 | | AEBJQ1A18 | POWER RELAY | 6 | |
| T10 | | AETP35K136A | LOW VOLTAGE TRANSFORMER | 1 | |
| ZD12 | | AESZMTZJ150B | ZENER DIODE | 1 | (S262SF/BF/WF) |

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